

## CURRICULUM VITAE

### I. PERSONAL DATA

Name: **George Michael Pantalos, Ph.D.**  
Birthdate: May 5, 1952  
Birthplace: Jackson, Michigan, USA  
Citizenship: United States of America

Home: 207 Daleview Lane  
Louisville, Kentucky 40207  
Tel: (502) 895-2680

Work: University of Louisville  
Cardiovascular Innovation Institute  
302 East Muhammad Ali Blvd, Room 409  
Louisville, KY 40202  
Tel: (502) 852-4345, FAX: (502) 852-7195  
Mobile Phone: (502) 432-6294  
Electronic Mail: gmpant02@louisville.edu

### II. EDUCATION

Baccalaureate Degree: June 1975, The Ohio State University  
Bachelor of Science  
Aeronautical/Astronautical Engineering  
Pre-Medical Studies

Advanced Degrees: June 1978, The Ohio State University  
Master of Science, Biomedical Engineering

June 1983, The Ohio State University  
Doctor of Philosophy, Physiology

Postdoctoral Fellowship: July 1983 to February 1984  
The Ohio State University  
Department of Physiology

### III. PROFESSIONAL EXPERIENCE

#### A. **FULL-TIME**

February 1984 to July 2000: Faculty Member, **The University of Utah**

##### Appointments and Responsibilities:

February 1984 to July 2000: Member, Institute for Biomedical Engineering--  
conduct original interdisciplinary research; foster interdisciplinary  
exchange in the field of biomedical engineering; grant application and  
manuscript preparation; Manager, Physiology Laboratory; Manager,  
Biomedical Standards Division; Member, Quality Assurance  
Committee; Member, Laboratory Operations Committee, final pre-  
sterilization inspection and sign-off of all implantable devices

December 1984 to December 1988: Adjunct Assistant Professor, Department of Bioengineering--teach and formulate new curricula, advise graduate students, administer comprehensive exams

December 1988 to June 1992: Research Assistant Professor, Department of Bioengineering

July 1992 to July 2002: Research Associate Professor, Department of Bioengineering

July 2002 to June 2003: Adjunct Associate Professor, Department of Bioengineering

January 1985 to July 2000: Artificial Heart Clinical Coordinator, Department of Surgery--coordinate technical/research aspects of clinical application of the total artificial heart and circulatory support devices; provide educational instruction to SICU, medical, and surgical staff

July 1985 to June 1988: Research Instructor, Department of Surgery, Division of Artificial Organs--conduct original laboratory research; provide technical and research support for clinical application of total artificial hearts and ventricular assist devices; Co-Founder and Co-Editor of *DRIVELINES*, an international newsletter for artificial heart and ventricular assist device technical support staff; Co-Director, Vacuum Forming Artificial Heart Laboratory (5/86 to 7/87); grant application and manuscript preparation

July 1988 to June 1995: Research Assistant Professor, Department of Surgery, Division of Artificial Organs

July 1995 to July 2000: Research Associate Professor, Department of Surgery, Division of Artificial Organs

June 1989 to July 2000: Faculty Member, Rocky Mountain NASA Space Grant Consortium; Deputy Director, University of Utah Activities

July 2000 to Present: Faculty Member, **University of Louisville**

July 2000 to July 2004: Associate Professor, Department of Surgery, Division of Thoracic and Cardiovascular Surgery

July 2002 to Present: Member, University of Louisville Research Integrity Program, Animal Welfare Task Force

July 2002 to July 2006: Editor, Jewish Hospital Heart and Lung Institute Cardiopulmonary Consult

July 2004: Professor, Department of Surgery, Division of Cardiothoracic Surgery (with tenure effective July 1, 2005; transferred to the new Department of Cardiovascular and Thoracic Surgery July, 2014)

March 2005 to Present: Professor, Department of Biomedical Engineering

March 2005 to Present: Senior Member of the Graduate Faculty

2006 to 2009: Alternate Member Faculty Grievance Committee

2008 to Present: Norton Children's Hospital ECMO Team

(Research and technical support, training)

2010 to Present: Member, Institutional Animal Care and Use Committee

2015 to Present: Chairman, Institutional Animal Care and Use Committee

2011 to Present: Associate Faculty, Department of Physiology and Biophysics

2014 to Present: Professor, Department of Cardiovascular and Thoracic Surgery

2006 to 2007: Visiting Investigator, **Academy of Athens (Greece)**

Foundation for Biomedical Research, Center for Experimental Surgery

## **B. PART-TIME**

September 1983 to January 1984: Consultant, Institute for Biomedical Engineering, University of Utah

February 1984 to Present: Collaborating Research Consultant to biomedical organizations, including Medtronic, St. Jude, Carbomedics, Impra, Transonic Systems, Symbion, Cardiac Systems, Physio-Control, FDA, Baxter Health Care, University of South Florida, St. Remy Press, National Geographic Society, British Broadcasting Corporation, Becton-Dickenson, Centrifugal Blood Pump Industry Task Force, ECRI, Medical Technology Leadership Forum, Datascope, CardioWest, SynCardia

June 1984 to September 1985: Student Science Advisory Consultant, Westminster College--provide guidance to students preparing a biomedical experiment to fly on the Space Shuttle

September 1986 to May 2004: Student Science Advisory Consultant, Bellarmine University, Department of Biology--provide guidance to a student preparing a biomedical experiment to fly on the Space Shuttle

August 1988 to June 2010: Adjunct Assistant Professor, The Ohio State University, School of Allied Medical Professions, Division of Circulation Technology

August 1988 to July 2000: Volunteer Surgical Technician, Salt Lake City Department of Veterans Affairs Medical Center

## **C. EDITORIAL EXPERIENCE**

September 1986 to Present: Editorial Board Member, *EXCERPTA MEDICA*

May 1988 to May 1991, May 1997 to May 2012: Editorial Board Member, *ASAIO Journal*; Ad Hoc Reviewer to present

1989 to Present, Ad Hoc Reviewer, IEEE Transactions on Biomedical Engineering

1991 to 1993, Ad Hoc Reviewer, ASME Journal of Biomedical Engineering

July 2002 to June 2006: Editor, Jewish Hospital Heart and Lung Institute Cardiopulmonary Consult

September 2002 to Present: Ad Hoc Reviewer, Journal of Biomechanics  
2002 to Present: Ad Hoc Reviewer, Journal of Biomechanical Engineering  
February 2005 to Present: Ad Hoc Reviewer, Journal of Advances in Space Research  
March 2005 to Present: Ad Hoc Reviewer, Journal of Applied Physiology  
February 2010 to Present: Ad Hoc Reviewer, Cardiovascular Engineering and Technology  
October 2010 to Present: Ad Hoc Reviewer, Annals of Biomedical Engineering  
October 2010 to Present: Ad Hoc Reviewer, Artificial Organs  
December 2010 to Present: Ad Hoc Reviewer, The Royal Society, Interface  
December 2013 to Present: Ad Hoc Reviewer, Open Access Surgery  
December 2014 to Present: Ad Hoc Reviewer, Clinical Medicine Insight: Cardiology

**D. RESEARCH AWARDS, PATENTS, DEVICE DISCLOSURES, FDA APPLICATIONS, SPACE FLIGHT EXPERIMENTS**

Awards: LVAD AND RVAD WITH PORTABLE ELECTROPNEUMATIC DRIVE

July 1, 1984 to December 31, 1987, \$340,000  
NIH National Heart, Lung and Blood Institute  
Co-Investigator, Principal Author (W.J. Kolff, P.I.)

SMALL ARTIFICIAL HEARTS WITH MINIMUM THROMBOSIS

April 1, 1987 to March 31, 1991, \$911,828  
NIH National Heart, Lung and Blood Institute  
Co-Principal Investigator, (W.J. Kolff, P.I.)

100 ML STROKE VOLUME ELLIPTICAL TAH IN 50 KG RECIPIENTS

April 1, 1988 to March 30, 1993, \$1,648,897  
NIH National Heart, Lung and Blood Institute  
Co-Principal Investigator, Experiment Director (D.B. Olsen, P.I.)

ENERGETIC COMPARISON OF VENTRICULAR ASSIST TECHNIQUES

December 1, 1988 to November 30, 1993, \$350,000  
NIH National Heart, Lung and Blood Institute  
Principal Investigator (FIRST Award)

DEVELOPMENT OF A BIVENTRICULAR REPLACEMENT DEVICE

January 1, 1988 to October 31, 1993, \$4,224,597  
NIH National Heart, Lung and Blood Institute  
Project Physiologist, (D.B. Olsen, P.I.)

THE OTTAWA-UTAH EVAD PROGRAM

January 1, 1989 to December 30, 1993, \$2,747,350

Ottawa Heart Institute/Canadian Health Ministries  
Project Biomedical Engineer, (D.B. Olsen, P.I.)

THROMBOGENESIS IN BLOOD PUMPING DEVICES

December 1, 1989 to November 30, 1993, \$867,255  
August 1, 1995 to July 31, 1998, \$800,000  
NIH National Heart, Lung and Blood Institute  
Co-Investigator, (S.F. Mohammad, P.I.)

A NEW TOTAL ARTIFICIAL HEART FOR NEONATES AS A  
BRIDGE TO TRANSPLANTATION

April 1, 1990 to March 31, 1994, \$800,000  
Bugher and Eccles Foundations  
Project Physiologist, Regulatory Affairs Manager (G.L. Burns, P.I.)

ROCKY MOUNTAIN NASA SPACE GRANT CONSORTIUM

October 1, 1991 to March 31, 2000, \$2,044,000  
National Aeronautics and Space Administration  
Co-Director, University of Utah Activities

MODELING OF CARDIOVASCULAR RESPONSE TO  
WEIGHTLESSNESS

January 1, 1995 to December 31, 1997, \$376,563  
National Aeronautics and Space Administration  
Co-Investigator, (M.K. Sharp, P.I.)

EVALUATION OF VARIOUS TIMING SCHEMES AND  
BALLOON POSITIONS USING A NOVEL  
ECHOCARDIOGRAPHIC APPROACH IN PEDIATRIC  
INTRAAORTIC BALLOON PUMPING

July 1, 1995 to June 30, 1997, \$10,000  
Primary Children's Medical Center Foundation  
Co-Investigator, (L. Minich, P.I.)

INFLUENCE OF NON-NEWTONIAN BLOOD RHEOLOGY ON  
FLOW IN THE VASCULATURE

July 1, 1995 to June 30, 1996, \$25,000  
American Heart Association, Utah Affiliate  
Co-Investigator, (M.K. Sharp, P.I.)

HEARTS IN SPACE: THE ROLE OF GRAVITATIONAL  
ACCELERATION IN CARDIAC DIASTOLIC FUNCTION

1986 to 2004, \$250,000  
Principal Investigator  
Support from several organizations and agencies including NASA

ALTERNATIVES TO ECMO FOR PEDIATRIC CIRCULATORY  
SUPPORT

February 15, 1999 to July 31, 2005, \$610,461  
NIH National Heart, Lung and Blood Institute, ROI  
Principal Investigator

SENSOR IAB ACUTE ANIMAL EVALUATION

July 2001 to June 2003 \$19,825  
Datascope Corporation  
Principal Investigator

CHEST COMPRESSION EFFICACY FOR CPR IN  
MICROGRAVITY  
August 1, 2002 to July 31, 2007 \$32,000 (+\$25,000 match)  
NASA EPSCoR (Kentucky)  
Principal Investigator

COMPUTER MODELING OF CARDIOVASCULAR FUNCTION IN  
ASTRONAUTS  
July 1, 2001 to June 30, 2002, \$58,006  
NASA EPSCoR (Kentucky)  
Co-Investigator, (M.K. Sharp, P.I.)

DEVELOPMENT OF AN ARTIFICIAL VASCULATURE AS A  
BRIDGE TO MYOCARDIAL RECOVERY  
July 1, 2002 to June 30, 2005, \$239,973  
Whitaker Foundation  
Co-Investigator, (S.C. Koenig P.I.)

BIOMEDICAL NANO- AND MICRO-ELECTRO-MECHANICAL  
SYSTEMS  
January 1, 2002 to December 30, 2004, \$2,490,056  
NSF EPSCoR (Kentucky)  
Co-Investigator, (R. Keynton, P.I.)

EFFECT OF GRAVITATIONAL ACCELERATION ON CARDIAC  
DIASTOLIC FUNCTION  
July 1, 2002 to December 31, 2004, \$30,170  
Kentucky NASA Space Grant Consortium  
Principal Investigator

INTRAOPERATIVE MEASUREMENT OF INTRAAORTIC  
BALLOON PUMP MEASUREMENT ERRORS  
October 1, 2002 to September 30, 2003, \$20,000  
Mason and Mary Rudd Surgical Training Fund at Jewish Hospital  
Principal Investigator

PHYSIOLOGICAL CONTROL OF BLOOD PUMPS  
January 1, 2003 to December 31, 2008, \$500,000  
American Heart Association  
Co-Investigator (M. Skliar, P.I.)

ASSESSMENT OF INTRAOPERATIVE FUNCTION OF THE  
INTRAAORTIC BALLOON PUMP  
July 1, 2003 to June 30, 2007, \$99,000  
American Heart Association/Ohio Valley Affiliate  
Principal Investigator

GLP COMPLIANT CARDIOVASCULAR DATA ACQUISITION  
AND ANALYSIS  
July 1, 2003 to June 30, 2005, \$179,221  
Kentucky Science and Engineering Foundation  
Co-Investigator (S. Koenig, P.I.)

INTEGRATED PEDIATRIC CARDIOPULMONARY ASSIST  
SYSTEM  
April 1, 2004 to March 31, 2010, \$1,138,334  
NIH National Heart, Lung, and Blood Institute, BAA Contract  
Principal Investigator (University of Louisville Sub-contract)

PULSATILE PEDIATRIC BLOOD PUMP DEVELOPMENT –  
Phase II

April 1, 2004 to April 30, 2008, \$422,078  
NIH National Heart, Lung, and Blood Institute, SBIR Phase II  
Principal Investigator (University of Louisville Sub-contract)

ECMO FOR THE TREATMENT OF EQUINE NEONATAL  
DISTRESS SYNDROME

May 1, 2004 to April 30, 2006, \$159,166  
Kentucky Science & Engineering Foundation  
Co-Investigator (K. Litwak, P.I.)

EVALUATION OF A COUNTERPULSATION DEVICE

February 1, 2004 to July 31, 2004, \$60,000  
Accelerated Technologies Incorporated  
Co-Principal Investigator

EVALUATION OF AN ATRIAL SHUNT DEVICE

August 1, 2004 to December 31, 2004, \$25,000  
Accelerated Technologies Incorporated  
Co-Principal Investigator

AN ARTIFICIAL PERICARDIUM FOR PEDIATRIC SUPPORT

December 1, 2006 to August 31, 2008, \$177,050  
National Heart, Lung, and Blood Institute, SBIR Phase II  
Study Director (University of Louisville Sub-contract)

CHRONIC ANIMAL EVALUATION OF THE CIRCULITE  
SYNERGY ASSIST DEVICE IN SHEEP – Pilot GLP Study

November 1, 2007 to December 31, 2007, \$39,500  
CircuLite, Inc.  
Study Director

PRE-CLINICAL ANIMAL SAFETY STUDY FOR EVAHEART  
LVAS-C01

January 1, 2008 to May 31, 2008, \$92,171  
Evaheart/Sun Medical Inc.  
Study Director

CHRONIC ANIMAL EVALUATION OF THE CIRCULITE  
SYNERGY ASSIST DEVICE IN SHEEP – GLP Study

April 1, 2008 to September 30, 2008, \$333,959  
Study Director

ENSIION HIGH EFFICIENCY DIALYSIS

October 1, 2008 to May 31, 2009, \$78,000  
National Institute of Diabetes and Digestive and Kidney Diseases,  
SBIR Phase II  
Principal Investigator (University of Louisville Sub-contract)

UNIVERSAL TET SYSTEM FOR IMPLANTED LIFE SUPPORT  
SYSTEMS

October 1, 2008 to September 30, 2011, \$82,520  
National Heart, Lung, and Blood Institute, SBIR Phase II  
Principal Investigator (University of Louisville Sub-contract, awarded,  
but not executed)

PRE-CLINICAL EVALUATION OF THE ENSION PEDIATRIC  
CARDIOPULMONARY ASSIST SYSTEM (pCAS)  
January 15, 2010 to January 14, 2012, \$407,121  
National Heart, Lung, and Blood Institute, BAA Contract  
Principal Investigator (University of Louisville Sub-contract, awarded,  
but not executed)

ATS MEDICAL CRYOCLAMP EVALUATION  
January 1, 2010 to November 1, 2010  
ATS Medical, Inc.  
Co-Investigator (E. Boland, P.I.)

CIRCULITE SYNERGY IMPLANTATION VIDEO PROJECT  
June 1, 2010 to June 30, 2010, \$17,376  
CircuLite, Inc.  
Principal Investigator

SYNCARDIA TAH GLP PROTOCOL PREPARATION  
July 1, 2010 to March 31, 2011, \$57,862  
SynCardia Systems, Inc.  
Principal Investigator

CIRCULITE TRAINING VIDEO PROJECT  
November 1, 2011 to November 30, 2011, \$12,110  
CircuLite, Inc.  
Principal Investigator

ENDOPROTECH, INC, MYOCARDIAL PROTECTION  
EVALUATION  
September 1, 2011 to August 31, 2012 \$150,000  
EndoProtech, Inc.  
Principal Investigator

HEMOLYSIS TESTING OF SYNCARDIA TAH  
February 1, 2012 to June 30, 2012 \$115,200  
SynCardia, Inc.  
Co-Investigator (G.A Giridharan, P.I.)

CIRCULITE SYNERGY MOCK CIRCULATION TESTING  
May 1, 2012 to September 30, 2012 \$36,245  
CircuLite, Inc.  
Principal Investigator

CIRCULITE SYNERGY INFLOW CANNULA CADAVER STUDY  
October 1, 2013 to October 31, 2013 \$17,609  
CircuLite, Inc.  
Role: Principal Investigator

PARABOLIC FLIGHT EVALUATION OF A HERMETIC  
SURGERY SYSTEM FOR REDUCED GRAVITY (OGMB120727)  
March 1, 2012 to February 28, 2016 \$225,000/14 missions  
NASA Flight Opportunities Program Payload 49-P  
Role: Principal Investigator

WETLAB-2 FLUIDIC SUBCOMPONENT TESTING  
June 1, 2013 to February 2014 \$10,000/2 missions  
NASA Flight Opportunities Program Payload 110-P



Role: Parabolic Flight Mentor & Flight Team Member (M. Parra, P.I.)

BLOOD TRAUMA EVALUATION OF THE SYNCARDIA 50cc  
TOTAL ARTIFICIAL HEART (P.I. Guruprasad Giridharan, Ph.D.)  
June 1, 2014 to December 31, 2014  
SynCardia Systems, Inc., \$217,079  
Role: Co-Investigator

SUBORBITAL FLIGHT EVALUATION OF AN AQUEOUS  
IMMERSION SURGICAL SYSTEM FOR REDUCED GRAVITY  
(OGMB 160069)  
January 1, 2016 to December 31, 2020 \$250,000  
NASA Flight Opportunities Program, Payload T0155-S  
Role: Principal Investigator

MAGNETICALLY LEVITATED BLOOD PUMP-OXYGENATOR  
IMPELLER FOR EXTRACORPOREAL PEDIATRIC LIFE  
SUPPORT (OIEB 160812)  
August 15, 2016 to August 14, 2019  
NHLBI STTR Phase I \$62,465  
Role: Sub-Award Principal Investigator

INVESTIGATION OF LUNG PRESERVATION AND LUNG  
DISEASE TREATMENT  
October 1, 2016 to September 30, 2021 (G2839)  
Gibbs Foundation Grant, \$1,050,000  
Role: Co-Investigator and Project Manager (Gray and van Berkel, Co-  
PI)

LEAK-FREE TROCAR FOR ENDOSCOPIC SURGERY  
September 1, 2017 to Feb 28, 2020 (OGMB1415501; subaward of  
U01HL125718, P Bates, PI)  
NIH REACH Program \$50,000  
Role: Principal Investigator

CREATING SURGICAL CAPABILITIES FOR EXPLORATION  
SPACEFLIGHT  
October 1 2017 to September 30, 2019 (OGMB 171376)  
NASA Translational Research Institute for Space Health, \$609,000  
Role: Principal Investigator

EVALUATION OF PRESERVED BLOOD FOR TRANSFUSION  
THERAPY IN REDUCED GRAVITY  
January 1, 2019 to December 31, 2020 (OGMB181227)  
NASA Flight Opportunities Program, Payload T0209-P, \$275,000  
Role: Co-Investigator and Research Flight Director (Menze, PI)

STUDENT PARABOLIC FLIGHT CAMPAIGN TRAVEL GRANT  
April 4, 2019 to July 31, 2020 \$3000  
NASA Kentucky Space Grant Consortium (OGMB190963)  
Role: Principal Investigator

STUDENT PARABOLIC FLIGHT CAMPAIGN TRAVEL GRANT  
(supplement)  
October 1, 2019 to June 30, 2020 \$8400  
NASA Kentucky Space Grant Consortium (OGMB190963S1)  
Role: Principal Investigator

Device Disclosures:

VENTRICULAR ASSIST DEVICE UPTAKE CANNULA WITH BLOOD ACCESS CATHETER

University of Utah Case Number: U-1280

Inventor: George M. Pantalos

ROTATING DRUM DRIVEN TOTAL ARTIFICIAL HEART

University of Utah Case Number: U-1401

Inventors: Chi Han Kim, George M. Pantalos

LEAK-FREE ENDOSCOPIC SURGICAL TROCAR

University of Louisville File Number: URLF 14003

July 3, 2013

Inventor: George M. Pantalos

MULTI-FUNCTION SURGICAL SUCTION WAND

University of Louisville File Number: 17009

Submitted August 26, 2016

Inventor: George Pantalos

U of L Technology Disclosure: "DEVELOPMENT OF A FLUID MANAGEMENT SYSTEM FOR SURGERY," ULRF 18070-01

Submitted April 18, 2018

Inventors: G Pantalos, T Roussel, T Higginson

U of L Technology Disclosure: "MULTIFUNCTION SURGICAL WAND," ULRF 18059-01.

Submitted April 18, 2018

Inventors: G Pantalos, T Roussel, B Barrow

U of L Technology Disclosure: "PORTABLE APPARATUS FOR SMALL SCALE RESEARCH IN NORMAL AND EXTREME ENVIRONMENTS," URLF 18066-01.

Submitted May 7, 2018

Inventors: G Pantalos, MK Sharp, T Roussel

U of L Technology Disclosure: "MULTI-LUMEN ARTHROSCOPY CANNULA (MLAC)," ULRF 19006-01.

Submitted August 24, 2018

Inventors: G Pantalos, D Caborn, J Heidel

U of L Technology Disclosure: "Ventillator Valve with Breath Dapture and Bronchoscopy Ports (VVBCBP)," ULRF 20004-01.

Submitted July 28, 2019

Inventors: G Pantalos, V van Berkel, J Heidel, J Rice, S Shacklette

U of L Technology Disclosure: "KardioKid – A Functioning Pediatric Cardiovascular Model for Simulation and Hands-on Training." ULRF 20008. Submitted September 11, 2019.

U of L Technology Disclosure: "3D Printed Nasal Swab." ULRF 20053, Submitted, April 14, 2020.

- Patents:
- Inventors: G. Pantalos and T. Roussel  
PHYSIOLOGIC DATA ACQUISITION AND ANALYSIS  
SOFTWARE COMPLIANT WITH GOOD LABORATORY  
PRACTICES (GLP)  
Patent Pending, University of Louisville file No. 04019  
Inventors: Koenig, S.C., Unger, L.S., Pantalos, G.M., Litwak, K.N.,  
Gillars, K.J., Wollard, C., Mulcahy, J., Skaggs, S.
- ARTIFICIAL VASCULAR DEVICE FOR VENTRICULAR  
SUPPORT AND RECOVERY: CONCEPT, CONTROL,  
IMPLEMENTATION, AND APPLICATIONS  
Patent Pending, University of Louisville file No. 04038  
Inventors: Koenig, S.C., Giridharan, G.A., Pantalos, G.M., Litwak,  
K.N., Glower, J., Ewert, D.L., Cheng, R.
- PERIVASCULAR PRESSURE SENSOR AND SENSING SYSTEM  
U. S. Patent and Trademark Office  
Patent Number 8231538, 31 July 2012  
Inventors: Abersold J.A., Giridharan, G.A., Pantalos, G.M., Gray, L.A.
- TROCAR FOR REDUCED LEAKAGE OR NON-LEAKAGE  
DURING ENDOSCOPIC SURGERY  
U.S. Patent and Trademark Office  
Provisional Patent Number 62/085,771, submitted December 1, 2014  
Inventor: Pantalos, G.M.
- TROCAR FOR IMPROVED FLUID PRESSURE MANAGEMENT  
DURING ENDOSCOPIC SURGERY  
International Patent PCT/US15/63125  
Submitted December 1, 2015 (National stage of review)  
Inventor: Pantalos, G.M.
- U of L Technology Disclosure: "MULTIFUNCTION SURGICAL  
WAND," ULRF 18059-01. (Inventors: G Pantalos, T Roussel, B  
Barrow); USPTP provisional patent filed September 11, 2018:  
application number 62/729,857
- U of L Technology Disclosure: "PORTABLE APPARATUS FOR  
SMALL SCALE RESEARCH IN NORMAL AND EXTREME  
ENVIRONMENTS," ULRF 18066-01. (Inventors: G Pantalos, MK  
Sharp, T Roussel); USPTP provisional patent filed September 18,  
2018: application number 62/733,654
- U of L Technology Disclosure: "MULTI-LUMEN ARTHROSCOPY  
CANNULA (MLAC)," ULRF 19006-01. (Inventors: G Pantalos, D  
Caborn, J Heidel); USPTP provisional patent filed October 17, 2018:  
application number 62/746,604
- FDA Applications: UTAH-100 TOTAL ARTIFICIAL HEART: INVESTIGATIONAL  
DEVICE FEASIBILITY STUDY EXEMPTION APPLICATION  
(William A. Gay, Jr., M.D., P.I.)  
FDA IDE Number G890070  
Principal Author and Document Coordinator
- Space Flight Experiments: Principal Investigator: THE ROLE OF GRAVITATIONAL  
ACCELERATION IN CARDIAC DIASTOLIC FUNCTION; NASA  
Payload G-572, G-779

G-572: Space Shuttle Mission STS-85, August, 1997  
 G-779: Space Shuttle Mission STS-95, October, 1998

Student MirrorTeam Recruiter and Advisor: PROJECT STARSHINE;  
 Space Shuttle Mission STS-96, May 1999, Space Shuttle Mission STS-108, December 2001

#### IV. SCHOLASTIC HONORS

Sigma Gamma Tau (National Aerospace Engineering Honorary), 1973  
 Tau Beta Pi (National Engineering Honorary), 1974  
 NIH Visiting Scientist, Moscow, Russia, 1992

#### V. ADMINISTRATIVE EXPERIENCE AND TRAINING

|                            |  |
|----------------------------|--|
| July 1984 to Present:      | NIH Grant Management   |
| May 1986 to July 1987:     | Co-Director, Vacuum Forming Artificial Heart Laboratory  |
| January 1988 to July 2000: | Branch Manager, Biomedical Standards Branch, Biomedical Division, Artificial Heart Research Laboratory |
| January 1988 to July 2000: | Branch Manager, Physiology Branch, Biomedical Division, Artificial Heart Research Laboratory           |
| March 1990:                | Certificate, University of Utah Personnel Management Training Program                                  |
| March 1991:                | Certificate, <i>CareerTrack</i> Excellence in Management Training Program                              |

#### VI. PROFESSIONAL COMMUNITY ACTIVITIES

- Conference Organization/Program Committee/Session Chairperson: Kolff-75 Symposium (1986), IEEE/EMBS (1986), ASAIO (1989, 1990, 1991, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2008, 2009, 2010), ESAO (1991), FASEB (1991), International Head-Out Water Immersion Symposium (1999, 2002), WAITS (2001), BIO2002, Medical Writers Association of America (2009)
- Utah Affiliate, American Heart Association, Science Fair Judge
- American Society for Artificial Internal Organs:
  - Membership Committee (May 1988 to 1991)
  - Program Committee (May 1988 to 1991, 1997 to 1999, 2009)
  - Regulatory Affairs Committee (April 1991 to April 2009), Chairman April 1993 to 2009)
  - Board of Trustees, (May 1996 to July 2000)
  - Project Bionics/ASAIO History Committee (2003 to present)
- American Society for Artificial Internal Organs and Society of Thoracic Surgeons, Long-Term Blood Pump Reliability Working Group (April 1994 to 2005, Chairman)
- Greater Minnesota Corporation, Ad Hoc Reviewer (1989)
- Louisiana State University Medical Center Winter Course, Faculty Member (1989, 1990)
- National Heart, Lung, and Blood Institute, RO1 Ad Hoc Reviewer, (1991 to Present); Small Business Cardiovascular and Surgical Devices Study Section (ZRG1 SBIB-Y12), member (2012 to present)
- Society of Thoracic Surgeons, Mechanical Circulatory Support Steering Committee (1999 to 2001)

- American Institute for Medical and Biological Engineering, Elected Fellow 2003, Medical Reimbursement Working Group (2003 to 2005), Membership Selection Committee (2003 to 2009), Federal Advocacy Committee (2007 to present)
- Jewish Hospital Heart & Lung Institute Board of Advisers (June 2005 to 2011)
- National Clinical Trial Initiative, Blood Pump Reliability Sub-committee, member (2006 to 2009)
- AAMI/ISO Standard Committee for Active Medical Devices; Part 5: Circulatory Support Devices; member Task Group 5 (System Performance) and Task Group 6 (InVivo Animal Evaluation, 2009 - 2010); Standard Revision Committee, 2014 to present
- National Space Biomedical Research Institute, “Surgical Capabilities for Exploration and Colonization Space Flight”, Lead Symposium Organizer (April 2015-April 2016)

## **VII. UNIVERSITY & CIVIC COMMUNITY ACTIVITIES**

- University of Utah Medical Center, Department of Community Relations Speakers Bureau (1984 to July 2000)
- Newman Center: Outreach Ministry, Music Ministry (1984 to July 2000)
- American Red Cross: Blood and Platelet Donor (1978 to Present)
- American Red Cross, Louisville Chapter
  - Apheresis Recruitment Committee (2005 to 2012)
  - First Aid Volunteer (2006 to 2010)
  - Board of Directors (2010 to present):
  - Biomedical Committee, Member
  - Diversity and Inclusion Committee, Member
  - “Wrapped in Red” fund-raiser planning committee, 2018-2019
  - National PRIDE Steering Committee, 2019 – present
    - ▶ 2011 River Valley Region Leadership Award
    - ▶ 2012 National Presidential Award for Excellence
- Salt Lake Area CROP Walk Organizing Committee (1988 to 1992)
- Lowell Bennion Community Service Center, Faculty Liaison (1989 to July 2000)
- Meals On Wheels, Volunteer Meal Delivery (1994 to July 2000)
- Jr. Jazz & Jr. Starzz Youth Basketball Coach (1996 to 1999)
- Cathedral of the Assumption Lunch Kitchen (2000 to Present)
- Church of the Epiphany Music Ministry (2000 to Present)
- Salt Lake 2002 Winter Olympic Games, Volunteer
- American Cancer Society Notes to Neighbors Campaign, Community Volunteer (2002 to 2010)
- Cabbage Patch Settlement House 2003 Streetball Shootout, Volunteer Court Monitor
- Jefferson County Circuit Court – Jury Duty, November 2003, November 2009
- American Heart Association, Louisville Chapter, Heart Walk Logistics Committee, (2006 to present)
- University of Louisville Institutional Animal Care and Use Committee, Member (2010 to present, Chairman July 2015 to present)
- University of Louisville Office of LGBT Services, Faculty Ally (2010 to present)
- Healthy Hoops Kentucky, Volunteer (2012)
- St. William Church, Music Ministry (2012 to present)

## **VIII. MEMBERSHIP IN PROFESSIONAL SOCIETIES**

- American Institute of Aeronautics and Astronautics (1973 to 1984)
- Utah Affiliate, American Heart Association (1984 to 2000)
- American Society of Artificial Internal Organs (1987 to Present)
- Physicians for Social Responsibility (1988 to 1998)

American Society for Gravitational and Space Biology, Member (1994 to 1998)  
American Institute for Medical and Biological Engineering, Fellow (2003 to Present)

**IX. TEACHING RESPONSIBILITIES/ASSIGNMENTS**

**A. COURSES DEVELOPED OR TAUGHT**

Ohio State University

Physiology 611-612: Graduate Organ and Systems Physiology Laboratory  
(Au '78, Win '79)

Physiology 312: Undergraduate Organ and Systems Physiology (Sp '80, Sp '81)

University of Utah

Bioengineering 695G-4: Cardiovascular Physiology (Win '86)

Bioengineering 532: Biomechanics II (Win '88, Au '89, Win '89, Sp '93)

Bioengineering 535: Introductory Cardiopulmonary Biomechanics  
(Win '91, Win '92, Win '96, Win '98, Win 2000)

Bioengineering 695: Introduction to Cardiopulmonary Mechanical Support,  
(Sp '90, Sp '91)

Health Education 580R-30: Utah's Artificial Heart, contributing lecturer  
(Sp '86, Sp '87)

Bioengineering 595-3: Introduction to the Federal Regulation of Medical  
Devices (Au '95)

SICU in-services at University of Utah Medical Center, Veterans Administration  
Medical Center, and LDS Hospital on circulatory mechanical assistance (1984  
to 2000)

University of Louisville

Bioengineering Survey Course, ECE 240 (Cardiovascular Lectures) Autumn  
Semester 2000, 2001, 2002, 2003, 2004

Bioengineering 491: Federal Regulation of Medical Devices, Autumn Semester  
(2008 to present)

Bioengineering 480: Biomedical Device Design (2016 to present)

Physiology and Biophysics 611: Clinical Physiology (2017 to present)

**B. GRADUATE STUDENTS SUPERVISED**

Committee Chairperson/Principal Advisor:

John D. Marks

Ph.D. in Bioengineering

Dissertation Topic: Intramyocardial Pressure as an Indicator of Left  
Ventricular Function during Pulsatile Ventricular Assistance

Chi H. Kim

M.S. in Bioengineering

Thesis Topic: Characterization of Natural and Artificial Heart Sound  
and Motion Generation

William J. Shaw

M.E. in Bioengineering

Project Topic: Evaluation and Improvement of a Non-invasive Monitor for Pneumatically Driven Artificial Hearts and Ventricular Assist Devices

Scott D. Everett

M.S. in Toxicology

Thesis Topic: Pharmacodynamic and Toxicological Actions of Inotropic Drugs in Calves with Natural and Artificial Hearts

Thomas G. Taylor

M.S. in Bioengineering

Thesis Topic: Hemodynamic Evaluation of an Infant Ventricular Assist Device

Robin Bartkoviak

M.E. in Bioengineering

Project Topic: Physical Modeling of Intraaortic Balloon Pump Circulatory Support in Pediatric Patients

Jeffery Colyer

M.S. in Electrical Engineering

*In vitro* and *In Vivo* Performance of a Pediatric Cardiopulmonary Support System

Jeffrey Henson

M.S. in Physiology and Biophysics

Project Topic: Chest Compression Efficacy for CPR in Microgravity: Ground-based Instrumented Mannequin Studies at the University of Louisville

Mead Ferris

M.S. in Physiology and Biophysics

Project Topic: Chest Compression Efficacy for CPR in Microgravity: Ground-based Human and Flight-based Mannequin Pilot Studies

Tracy Merkley

M.S. in Physiology and Biophysics

Project Topic: Efficacy of Mechanical Circulatory Support in an Infant Model of Atrial Septal Defect

Erin Justice

M.S. in Physiology and Biophysics

Project Topic: Initial *In Vivo* Performance Evaluation of the RenalFlow Dialyzer

Emily Rath

M.S. in Physiology and Biophysics

Project Topic: Determination of Pediatric and Adult Blood Viscosity for Circulatory Support Device Testing

Christina Ayers

M.E. in Bioengineering

Project Topic: Performance Characterization of a Pediatric Cardiopulmonary Assist System Using Dual Lumen Venovenous Cannulation

Ashwin Ravisankar

M.S. in Physiology and Biophysics  
Project Topic: Pumping Performance Evaluation of the Ension Rev 7  
Pediatric Cardiopulmonary Assist System with Dual Lumen Cannulae

Lacey Pyles

M.S. in Physiology and Biophysics  
Project Topic: Modeling Single Ventricle Physiology with outlet valve  
regurgitation

William Ngha

M.S. in Physiology and Biophysics  
Project Topic: Modeling Single Ventricle Physiology with Blaylock-  
Taussig Shunt

Carissa Mallonee

Ph.D. in Physiology and Biophysics  
Dissertation Topic: The Effects of Rapid Hypobaric Pressure  
Fluctuations on Endothelial Cells and the Responses to Hyperoxia

Committee Member:

Royce W. Johnson

Ph.D. in Bioengineering  
Dissertation Topic: Signal Processing Strategies for the Enhancement  
of the Signal to Noise Ratio of Thermodilution Cardiac Output  
Measurements

Therese Davy

M.S. in Bioengineering  
Thesis Topic: Development and Application of an *In Vivo* Stunned  
Myocardium Model

Therese Davy

Ph.D. in Bioengineering  
Dissertation Topic: Retrovenous Perfusion of the Coronary Artery  
System Following Coronary Artery Ligation in the Ovine  
Model

Neil Battiste

M.E. in Bioengineering  
Research Topic: Urolithiasis Management in Urinary Tract Implants

Scott Stonebrook

Ph.D. in Bioengineering  
Dissertation Topic: Knee Mechanics Following Anterior Cruciate  
Ligament Replacement

Susan J. Quaal

Ph.D. in Nursing  
Dissertation Topic: A Time Series Descriptive Study of the Attributes  
of Powerlessness as Correlated with Physiological Variables in Intra-  
aortic Balloon Pumped Patients

Gail Blomstrom

Ph.D. in Bioengineering



Dissertation Topic: Effects of Stinting on the Healing of ACL Reconstructions

Maureen Hershgold

M.S. in Exercise and Sports Sciences

Thesis Topic: Reliability and Validity of Three Methods of Hematocrit Measurement

Mary M. Sinnott

M.S. in Mechanical Engineering

Thesis Topic: Surface Integrity and Fatigue Effects on *In Vitro* Degradation of Biomer

Jeffery T. Juretich

M.S. in Mechanical Engineering

Thesis Topic: Accelerated Wear Development on the 27 Millimeter St. Jude Artificial Heart Valve in the Mitral Position for Use in an Artificial Heart

Scott B. McClellan

M.S. in Bioengineering

Thesis Topic: Stiffness of the Human Cadaver Head in the Temporal/Parietal Region

Ravi K. Dharmalingham

M.S. in Mechanical Engineering

Thesis Topic: Design and Evaluation of Mock Circulation Systems

Kevin J. Gillars

M.S. in Civil Engineering

Thesis Topic: Modeling Cardiovascular Response to Weightlessness

Kristy Petersen

M.S. in Bioengineering

Thesis Topic: Analytical Modeling of the Role of Gravitational Acceleration on Cardiovascular Function

Guruprasad Giridharan

M.S. in Chemical Engineering

Thesis Topic: Modeling and Control of a Brushless DC Axial Flow Ventricular Assist Device

Guruprasad Giridharan

Ph.D. in Chemical Engineering

Dissertation Topic: Automated Control of a Brushless DC Axial Flow Ventricular Assist Device

Angela Yamaguchi

Ph.D. in Bioengineering

Dissertation Topic: Cupular Micromechanics and Motion Sensation in the Toadfish Vestibular Semicircular Canals

Jamie Vener

Ph.D. in Exercise and Sports Science

Dissertation Topic: Alteration in Cardiac Myocyte Morphology in Hind-limb Suspended Rats

- Pratap Khanwilkar  
Ph.D. in Bioengineering  
Dissertation Topic: Towards the Development and Configuration of an Innovative and Reliable Blood Pump for Long-Term Use
- Giridhar Kommidi  
M.S. in Mechanical Engineering  
Thesis Topic: Hemolysis in Needles
- Neema Nair  
M.S. in Mechanical Engineering  
Thesis Topic: Viscoelastic Properties of Pediatric Blood
- Ling Bai  
M.S. in Health and Sports Science  
Thesis Topic: Load-Power Relationships for High-speed Resistive Exercise
- Ian O'Brien  
M.S. in Health and Sports Science  
Thesis Topic: The Impact of Palm Cooling Gloves Metabolic, Cardiovascular, and Thermal Responses Produced from Rowing Ergometry
- Jacob Garza  
M.E. in Chemical Engineering  
Thesis Topic: Comparing Stenotic Blood Flow in Three- and Two-dimensional Arterial Renderings Using Computational Fluid Dynamics and Multiphase Mean Age Theory
- Tyler Higginson  
M.E. in Bioengineering  
Project Topic: Development of a Flight-Ready Fluid Management System for Ground and Space-based Surgeries
- Brooke Barrow  
M.E. in Bioengineering  
Thesis Topic: Design and Development of a Multifunctional Surgical Device For Ground and Space-based Surgical Applications
- Luke Ackermann  
M.E. in Bioengineering  
Project Topic: Flight Ready Fluid Management System for Earth based- and Aerospace Endoscopic Surgeries
- Mohammad Faghih  
Ph.D. in Mechanical Engineering  
Dissertation Topic: Improving Flow-Induced Hemolysis Prediction Models

**X. OTHER PERTINENT PROFESSIONAL INFORMATION**

**A. AVIATION CERTIFICATIONS**

FAA Airman Written Exam (RIS:AC 8080-2), July 1981  
FAA Class III Medical Certificate, August, 1991  
USAF/NASA Physiologic Training, March, 1992 to Present  
USAF/NASA Class III Flight Physical, July, 1992 to Present

**B. FLIGHT EXPERIENCE**

NASA KC-135A/C-9/Zero-G 727: In-flight Science Investigator - 43 missions (80 hrs) to date  
Utah Air National Guard KC-135: Orientation Flight - 1 mission (3 hrs) to date  
Cardiovascular Aeromedical Patient Transport (Co-Pilot) - 2 missions (1 hr) to date  
Private, Twin Engineer Aircraft (Co-Pilot) - 5 missions (15 hours) to date  
Simulated Suborbital Space flights – 7 centrifuge protocols to date

**C. CPR/FIRST AID CERTIFICATIONS**

American Heart Association Basic Life Support – December 1999  
American Red Cross CPR/AED for the Professional Rescuer – September 2004 to September 2010  
American Red Cross First Aid – February 2006 to February 2010

## BIBLIOGRAPHY

### ORIGINAL PUBLICATIONS

#### **ACADEMIC DOCUMENTS**

1. Pantalos, G.M. (1978): *"The Effect of Chronic Wholebody Vibration on the Formation of Atherosclerotic Lesions in the Rabbit Aorta."* Masters Thesis, The Ohio State University, Columbus, Ohio.
2. Pantalos, G.M. (1983): *"The Effect of Heart Rate on Left Ventricular Energy Balance in Chronically Instrumented, Anesthetized Dogs."* Doctoral Dissertation, The Ohio State University, Columbus, Ohio.

#### **PEER REVIEWED MANUSCRIPTS**

1. Pantalos, G.M. & Street, C.L. (1975): "Rocket Trajectory Prediction for Tropospheric Flight." *Proceedings of the 25th Congress of the International Astronautic Federation.*
2. Pantalos, G.M. (1977): "Fluid Mechanical Effects in the Cardiovascular System Due to Vibrational Stresses Experienced in Spaceflight." Paper No. 77-319, *American Institute of Aeronautics and Astronautics 13th Annual Meeting and Technical Display.*
3. Anderson, F.L. & Pantalos, G.M. (1986): "Phonocardiographic Evaluation of Total Artificial Heart Valve Movement. Correlation with Pressure Waveforms." *Artificial Organs*, Vol. 10, No. 1, p. 65-68.
4. Pantalos, G., Marks, J., Riebman, J., Burton, N., DePaulis, R., Kolff, W.J. (1988): "Hemodynamic and Energetic Assessment of Calves Implanted with a Left Ventricular Assist Device." *International Journal of Artificial Organs*, Vol. 11, No. 2, p. 119-126.
5. Pantalos, G., Chiang, B., Bishop, D., Perkins, P., Yu, L., Jansen, J., Socha, P., Marks, J., Riebman, J., Burns, G., Kolff, W.J., Hansen, G., Wildevuur, W., Wurzel, D., Brownstein, L., Kolff, J. (1988): "Development of Smaller Artificial Ventricles and Valves Made by Vacuum Forming." *International Journal of Artificial Organs*, Vol. 11 (5), p. 373-380.
6. Chandran, K., Fatemi, R., Schoephoerster, R., Wurzel, D., Hansen, G., Yu, L., Pantalos, G., Kolff, W.J. (1989): "In Vitro Comparison of Velocity Profiles and Turbulent Shear Distal to Polyurethane Trileaflet and Pericardial Prosthetic Valves." *Artificial Organs*, Vol. 13, No. 2, p. 148-154.
7. Pantalos, G., Everett, S., Mohammad, S., Burns, G., Solen, K., Reynolds, L., Olsen, D. (1990): "Quantification of Valvular Thrombus Formation in Blood Pumps by Polar Coordinate Mapping." *Artificial Organs*, Vol. 14, No. 5, p. 348-354.
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9. Koppert, K., Pantalos, G., Tieleman, R., Swier, P., Burns, G. (1991): "Cardiac Output Requirements and Maximum Dimensions for a Neonate Total Artificial Heart." *Int J Artif Organs*, Vol. 14, p. 707-715.
10. Marks, J., Karwande, S., Richenbacher, W., Jones, K., Doty, D., Millar, R., O'Connell, J., Renlund, D., Bristow, M., Pantalos, G., Gay, W. (1992): "Perioperative Mechanical Circulatory Support for Transplantation." *J Heart Lung Transplantation*, Vol. 11, p. 117-128.

11. Kinoshita, M., Pantalos, G., Holfert, J., Dew, P., Burns, G., Mohammad, S., Olsen, D. (1992): "Animal Implantation Results with the Utah-100 Total Artificial Heart." *ASAIO Journal*, Vol. 38, p. 108-112.
12. Chiang, B., Olsen, D., Burns, G., Pantalos, G., Everett, S., Dew, P., Tatsumi E., Rowles, J., Mohammad, F. (1992): "Thrombus with Infection in Total Artificial Heart Animals. " *Artif Organs*, 16(4): 371-376.
13. Pantalos, G., Sharp, K. (1993): "Influence of Viscosity and Pressure on Prosthetic Valve Regurgitation." *Int J Artif Organs*, 16: 151-154.
14. Robison, P., Pantalos, G., Long, J., Bliss, R., Price, D., Everett, S., Goldman, P., Goldenberg, I., Olsen, D. (1993): "Toward Development of a Physiologic Control System Modifier Based on Continuous Measurement of Oxygen Consumption and Arterial-Venous Oxygen Saturation Following Total Artificial Heart Implantation." *International Journal of Artificial Organs*, 16:135-140.
15. Chiang, B., Pantalos, G., Burns, G., Tatsumi, E., Long, J., Everett, S., Wankier, R., Mohammad, F., Olsen, D. (1993): "Adaptive Responses of Total Artificial Heart Animals to Treadmill Exercise." *ASAIO J*, 39:M381-M385.
16. Seare, W., Pantalos, G., Burns, G., Burt, W., Olsen, D. (1993): "Quantitative Bacterial Analysis of Porous Fabric and Smooth Non-Blood Contacting Implant Surfaces and Their Tissue Interfaces in a 169 Day Pneumatic Total Artificial Heart Animal Recipient." *ASAIO J*, 39:M668-M674.
17. Kelly ME, Luetkemeier MJ, Pantalos GM. (1994): "A Justification for High Resolution Hematocrit Measurement." *Medicine and Science in Sports and Exercise*, Vol. No. 5, p. 547-550.
18. Chiang BY, Pantalos GM, Burns GL, Long JW, Khanwilkar PS, Everett SD, Mohammad SF, Olsen DB. (1994): "Oxygen Metabolism in Animals with Total Artificial Hearts. " *ASAIO J*, 40(3):M510-M513.
19. Chiang BY, Pantalos GP, Burns GL, Long JW, Everett SD, Mohammad SF, Olsen DB. (1994): "Anaerobic Threshold in Total Artificial Heart Animals." *ASAIO J*, 40(3):M335-339.
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52. Pantalos, G.M., Giridharan, G., Colyer, J., Mitchell, M., Speakman, J., Lucci, C., Johnson, G., Gartner, M., Koenig, S.C. (2007): "Effect of Continuous and Pulsatile Flow Left Ventricular

- Assist on Pulsatility in a Pediatric Animal Model of Left Ventricular Dysfunction: Pilot Observations.” *ASAIO J*, 53:385-391.
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Biovisibility created a video about the Blue Sky Symposium on the role of robotic assistance in medical/surgical procedures for exploration space flight that can be viewed at:

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267. Pantalos GM, Cahalan L, Gartner M, Cahalan P. (2016): "A Novel Device for Venous Retroperfusion of the Myocardium; Preliminary *In Vitro* Results." ASAIO J Online Abstracts:62, Abstract #173.



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271. Doarn CR, Pantalos G, Campbell M, Broderick T. (2017): "Surgical Care in Space – Robotics and Historical Implications." *Aerospace Med and Human Perf*: 88(3), p 33 [526].
272. Pantalos G. (2017): "Development of an Aqueous Immersion Surgical System for Reduced Gravity." *Aerospace Med and Human Perf*: 88(3), p 318 [475].
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278. Pantalos G, Drummond A, Boland E, Tourro J, Morley D, Burkhoff D. (2018): "In Vitro Simulation of Partial Left Ventricular Assist in Adults." ASAIO J Online Abstracts.
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282. Jain , S. Warner, S. Greenbaum , M. Hedge , M. Hailey, G. Pantalos (2019): “Using Conventional Methods for Trauma Fluid Resuscitation in Reduced Gravity.” Abstracts of the 2019 NASA Human Research Program Investigators’ Workshop, [#19212]
283. K.H. Miller, E. Sutton, T. Broderick, H. Doerr, J. Badger, J. Wu, K. Sharp, G. Grant, G. Pantalos (2019): “Applying Basic Education and Training Strategies to Supporting Complex Medical Procedures in an Extreme Environment.” Abstracts of the 2019 NASA Human Research Program Investigators’ Workshop, [#19345]
284. J. Wu, G. Grant, K. Sharp, K.H. Miller, E. Sutton, T. Broderick, H. Doerr, J. Badger, G. Pantalos (2019): “Assessing Operational Resources for Various Logistics Models for Resupplying Surgical Equipment on Exploration Space Flight Missions.” Abstracts of the 2019 NASA Human Research Program Investigators’ Workshop, [#19205].
285. J Badger, L Farrell, D Naftalovich, J Wu, T Broderick, G Pantalos (2019): “Robotic Assistance in Surgical Tasks for Exploration Space Flight.” Abstracts of the 2019 NASA Human Research Program Investigators’ Workshop, [#19206]
286. D Fer, B Thananjeyan, R Henry, P G Kilroy, K Goldberg, G Pantalos, J Cushman (2019): “A Roadmap for Artificial Intelligence in Support for Surgery in Space.” Abstracts of the 2019 NASA Human Research Program Investigators’ Workshop, [#19213]
287. D.J. Carroll, A. Sawyer, G. Pantalos (1019): “Applying Surgical Training Principles for Deep Space Mission Readiness: Building a Curriculum for Skill Acquisition, Practice, and Real-time Guidance.” Abstracts of the 2019 NASA Human Research Program Investigators’ Workshop, [#19208]
288. D.J. Carroll, E.L. Kerstman, A.J. Sawyer, G.M. Pantalos (2019): “Applying Surgical Training Principals for Deep Space Mission Readiness: Building a Curriculum for Skill Acquisitoin, Practice, and Real-time Guidance. *Aerospace Med and Human Perf*: 90(3), p 229 [217]
289. D.J. Carroll, E.L. Kerstman, A. Hargens, G. Pantalos, A.J. Sawyer (2019): “Surgical Preparedness for Deep Space Missions.” (in review, American College of Surgeons)
290. R. Henry, D. Fer, Z. Warriner, J. Locke, G. Pantalos, K. Inaba (2019): “Emergency Surgical Needs in Space: Supporting the NASA Mission to Mars.” (in review, American College of Surgeons)

**PRESENTATIONS**

1. Pantalos, G. & Street, C. (1975): "Rocket Trajectory Prediction for Tropospheric Flight." American Institute of Aeronautics and Astronautics, Midwest Regional Student Conference. (Cincinnati)
2. Pantalos, G. & Street, C. (1975): "Rocket Trajectory Prediction for Tropospheric Flight." International Astronautic Federation, 25th Annual Congress. (Lisbon)
3. Pantalos, G. (1976): "Fluid Mechanical Effects in the Cardiovascular System Due to Vibrational Stresses Experienced in Spaceflight." American Institute of Aeronautics and Astronautics, Midwest Regional Student Conference. (Milwaukee)
4. Pantalos, G. (1977): "Fluid Mechanical Effects in the Cardiovascular System Due to Vibrational Stresses Experienced in Spaceflight." American Institute of Aeronautics and Astronautics, 13th Annual Meeting and Technical Display. (Washington)
5. Pantalos, G. (1978): "The Effect of Chronic Wholebody Vibration on the Formation of Atherosclerotic Lesions in the Rabbit Aorta." ICSABER Society, The Ohio State University Student Conference. (Columbus)

6. Pantalos, G., Cornhill, J.F., Nerem, R. (1978): "Television Scanning of Atherosclerotic Lesions." Alliance for Engineering in Medicine and Biology, 31st Annual Conference on Engineering in Medicine and Biology. (Atlanta)
7. Pantalos, G. (1984): "The Effect of Heart Rate on the Mechanical Efficiency of the Canine Left Ventricle" and "Overview of the University of Utah Artificial Heart Program." Invited Lectures, The Johns Hopkins University, Hemodynamics Conference Series. (Baltimore)
8. Pantalos, G. & Kolff, W.J. (1984): "An Improved Mock Circulation for Total Artificial Heart Instruction and Performance Analysis." The University of Utah School of Medicine, 2nd Faculty Research Retreat. (Snow Bird)
9. Pantalos, G. & Kolff, W.J. (1984): "An Improved Mock Circulation for TAH Instruction and Performance Analysis." Cardiovascular System Dynamics Society, VIth International Conference.
10. Pantalos, G. (1984): "Preliminary Results of Total Artificial Hearts and Left Ventricular Assist Devices with St. Jude Prosthetic Valves." Invited Lecture, St. Jude Medical, Inc. (St. Paul)
11. Pantalos, G. (1985): "Implantable Artificial Hearts." Invited Lecture, The Johns Hopkins University, Center for Materials Research. (Baltimore)
12. Pantalos, G. & Pieper, H. (1985): "A Thermo-Mechanical Approach to Left Ventricular Energy Balance." The Central Ohio Chapter of the American Heart Association, Annual Research Day.
13. Pantalos, G. (1985): "Artificial Organs = Real Hope." Keynote Address, Northwest Conference of Radiologic Technologists, Annual Conference. (Salt Lake City)
14. Pantalos, G. (1985): "Pumps, Pipes and Filters: Treating Failing Hearts and Kidneys." Invited Lecture, The Cooper Union, Biomedical Engineering Seminar Series. (New York City)
15. Pantalos, G., Chiang, B., Hansen, G., Perkins, P., Bishop, D., Grevelink, G., Taenaka, Y., Holmberg, D., Burns, G., Olsen, D., Yland, M., Socha, P., Hover, G. (1986): "Development of Smaller Pneumatically Driven Total Artificial Hearts Made by Vacuum Forming." Kolff-75 International Symposium on Artificial Organs, Bioengineering and Transplantation. (Salt Lake City)
16. Pantalos, G., Anderson, F., Meyer, M., Kolff, W.J. (1986): "Two Unexplained Phenomena of the Artificial Heart in the First Human Permanent Recipient." Kolff-75 International Symposium on Artificial Organs, Biomedical Engineering and Transplantation. (Salt Lake City)
17. Pantalos, G., Hastings, B., Lewkowicz, S., Fellingham, L., Dew, P. (1986): "Three Dimensional Modeling of the *In Vivo* Human Chest Anatomy for Total Artificial Heart Design and Fit Trial Purposes." Kolff-75 International Symposium on Artificial Organs, Bioengineering and Transplantation. (Presented by B. Hastings). (Salt Lake City)
18. Pantalos, G., Meyer, M., Yland, M., Marks, J. (1986): "Intraventricular Pressure-Flow Relationships in Pneumatically Driven Total Artificial Hearts." Kolff-75 International Symposium on Artificial Organs, Bioengineering and Transplantation. (Presented by J. Marks). (Salt Lake City)
19. Pantalos, G., Marks, J., Anderson, F., Hastings, L., DeVries, W., Mays, B. (1986): "Phonocardiographic Studies in the Third Human Recipient of a Total Artificial Heart." Kolff-75 International Symposium on Artificial Organs, Bioengineering and Transplantation. (Presented by L. Hastings). (Salt Lake City)
20. Pantalos, G. (1986): "Development of Artificial Hearts." Invited Lecture, The Johns Hopkins University, Center for Materials Research. (Baltimore)

21. Pantalos, G. (1986): "Use of Total Artificial Hearts and Ventricular Assist Devices as Bridges to Transplantation." Invited Lecture, 2nd Surgical Clinic, University of Vienna. (Vienna)
22. Pantalos, G., Liotta, D., Riebman, J., Navia, J., DePaulis, R., Cabrol, C., Gandjbakhch, L., Pavie, A., Kolff, W.J. (1986): "A Ventricular Assist Device in the Chest Wall, A New Approach To An Urgent Problem." European Society for Artificial Organs, 13th Annual Meeting. (Avignon)
23. Pantalos, G. (1986): "Clinical Use of Artificial Hearts and Ventricular Assist Devices." Invited Lecture, Association of Surgical Technologists, Pioneering Procedures in Surgery Series.
24. Pantalos, G. (1986): "Critical and Emerging Issues in Artificial Organs." Key Note Lecture, IEEE Engineering in Medicine and Biology Society, 8th Annual Conference. (Ft. Worth)
25. Kolff, W.J., Pantalos, G., Olsen, D., Gay, W., Burton, N., Marks, J. (1986): "Development of Ventricular Assist Devices Made by Vacuum Forming." NIH National Heart, Lung and Blood Institute, Annual Contractors Meeting. (Bethesda)
26. Pantalos, G. & Marks, J. (1986): "Current Clinical Experience with Total Artificial Hearts." Invited Lecture, U.S. Food and Drug Administration, Center for Devices and Radiological Health, Division of Mechanics and Materials Sciences. (Rockville)
27. Pantalos, G. (1987): "Hemodynamic Characteristics of Artificial Hearts and Ventricular Assist Devices." Invited Lecture, University of Utah Division of Cardiology, Research Seminar Series. (Salt Lake City)
28. Pantalos, G. (1987): "An Introduction to Artificial Hearts and Ventricular Assist Devices." Invited Lecture, The Ohio State University, Division of Circulation Technology. (Columbus)
29. Pantalos, G. (1987): "Development, Testing and Clinical Trials of Artificial Hearts and Ventricular Assist Devices." Invited Lecture, The Johns Hopkins University, Center for Materials Research. (Baltimore)
30. Pantalos, G. (1987): "Current Perspectives on Artificial Hearts and Ventricular Assist Devices." Invited Lecture, U.S. Food and Drug Administration, Center for Devices and Radiological Health, Division of Mechanics and Materials Sciences. (Rockville)
31. Pantalos, G. (1987): "Current Perspectives on Artificial Hearts and Ventricular Assist Devices." Invited Lecture, Armed Forces Radiobiology Research Institute. (Bethesda)
32. Pantalos, G., Marks, J., Riebman, J., Burton, N., DePaulis, R., Kolff, W.J. (1987): "Hemodynamic and Energetic Assessment of Calves Implanted with a Left Ventricular Assist Device." Combined International Society for Artificial Organs VIth World Congress and European Society of Artificial Organs XIV Congress. (Presented by R. DePaulis).
38. Pantalos, G., Chiang, B., Perkins, P., Bishop, D., Jansen, J., Yu, L., Socha, P., Burns, G., Marks, J., Kolff, W.J., Wildevuur, W., Wurzel, D., Hansen, G., Kolff, J. (1987): "Development of Smaller Artificial Ventricles and Valves Made by Vacuum Forming." Combined International Society for Artificial Organs VIth World Congress and European Society for Artificial Organs XIV Congress. (Presented by D. Wurzel).
34. Pantalos, G., Marks, J., Riebman, J., Burton, N., DePaulis, R., Kolff, W.J. (1987): "Hemodynamic Assessment of Calves Implanted with a Left Ventricular Assist Device." IEEE Engineering in Medicine and Biology Society 9th Annual Meeting. (Boston)
35. Pantalos, G. (1988): "Current Topics in Ventricular Assistance." Invited Lecture, Eli Lilly Company. (Indianapolis)

36. Pantalos, G. (1988): "Development and Testing of Artificial Hearts and Ventricular Assist Devices." Invited Lecture, The Johns Hopkins University, Center for Materials Research. (Baltimore)
37. Pantalos, G. (1988): "Clinical Status of Artificial Hearts and Ventricular Assist Devices." Invited Lecture, U.S. Food and Drug Administration, Center for Devices and Radiological Health, Division of Mechanics and Materials Sciences. (Rockville)
38. Pantalos, G. (1988): "Clinical Application of Ventricular Assist Devices." Invited Lecture, The Ohio State University, Division of Circulation Technology. (Columbus)
39. Pantalos, G. (1988): "Current Clinical Status of Artificial Hearts and Ventricular Assist Devices." Invited Lecture, Bellarmine College, Department of Biology. (Louisville)
40. Pantalos, G., Marks, J., Riebman, J., Everett, S., Burns, G., Burton, N., DePaulis, R. (1988): "Left Ventricular Oxygen Consumption and Organ Blood flow Distribution During Pulsatile Ventricular Assist." 34th Annual Meeting of the American Society for Artificial Internal Organs. (Reno)
41. Pantalos, G. (1989): "Ventricular Assist Devices: Selection and Application." Louisiana State University Medical Center Winter Course. (Park City)
42. Pantalos, G. (1989): "Artificial Hearts - Good Vibes or Bad?" Invited Lecture, The University of Akron, Department of Biomedical Engineering. (Akron)
43. Pantalos, G. (1989): "Current Development and Testing of Artificial Hearts and Ventricular Assist Devices." Invited Lecture, The Johns Hopkins University, Center for Materials Research. (Baltimore)
44. Pantalos, G. (1989): "Current Research Topics with Artificial Hearts and Ventricular Assist Devices." Invited Lecture, U.S. Food and Drug Administration, Center for Devices and Radiological Health, Division of Mechanics and Materials Sciences. (Rockville)
45. Pantalos, G., Kim, C., Robison, P., Everett, S., Olsen, D. (1989): "Characterization of Natural Heart and Total Artificial Heart Acceleration." 35th Annual Meeting of the American Society for Artificial Organs. (Dallas)
46. Pantalos, G., Burns, G., Mohammad, F., Robison, P., Ramone, J., Everett, S., Dew, P., Olsen, D. (1989): "Microbiological Survey of Prosthetic Blood Pumps Pre and Poststerilization and at Explant Retrieval." 35th Annual Meeting of the American Society for Artificial Internal Organs. (Dallas)
47. Pantalos, G. (1989): "Advanced Cardiovascular Technology: VADs and TAHs." Invited Lecture, University of Utah Intermediate Critical Care Course. (Salt Lake City)
48. Pantalos, G. (1989): "Artificial Hearts and Ventricular Assist Devices: Their Development and Application." Invited Lecture, Annual Meeting of the Rocky Mountain Education Placement Association. (Salt Lake City)
49. Pantalos, G., Everett, S., Mohammad, F., Burns, G., Solen, K., Reynolds, L., Olsen, D. (1989): "Quantification of Valvular Thrombus Formation in Blood Pumps by Polar Coordinate Mapping." VII World Congress of the International Society for Artificial Organs. (Presented by G. Burns)
50. Pantalos, G., Holfert, J., Dew, P., Burns, G., Mohammad F., Robison, P., Jacobs, H., Kim, S., Nojiri, C., Goldenberg, I., Everett, S., Olsen, D., Gay, W. (1989): "Preparation of the Utah-100 Total Artificial Heart for Initial Human Clinical Trials." Cardiovascular Science and Technology: Basic and Applied, I. (Louisville)

51. Pantalos, G., Marks, J., Everett, S., Long, J., Olsen, D. (1989): "Energetic Comparison of Ventricular Assist Techniques (Year 1 Progress Report)." Cardiovascular Science and Technology: Basic and Applied, I. (Louisville)
52. Robison, P., Pantalos, G., Long, J., Bliss, R., Price, D., Everett, S., Goldman, P., Goldenberg, I., Olsen, D. (1990): "Toward Metabolic Control of Artificial Hearts by Oxygen Delivery and Utilization Monitoring." XVII Congress of the European Society for Artificial Organs. (Bologna)
53. Everett, S., Pantalos, G., Goldenberg, I., Long, J., Robison, P., Landa, M., Shaw, W., Olsen, D. (1990): "Calves Chronically Implanted with a Total Artificial Heart (TAH) as a Pharmacological Model." XVII Congress of the European Society for Artificial Organs. (Bologna)
54. Pantalos, G., Kim, C., Flatau, A. (1990): "Variation in Artificial Heart Acceleration and Sound Production with Prosthetic Valve Selection *In Vitro*." XVII Congress of the European Society for Artificial Organs. (Bologna)
55. Pantalos, G., Everett, S., Marks, J., Riebman, J. (1990): "Atrial and Ventricular Tissue Blood Flow Distribution During Pulsatile Left Ventricular Assistance." 2nd Brno Artificial Heart Symposium. (Brno)
56. Pantalos, G., Long, J., Burns, G., Dew, P. (1990): "Early Experience with Reinforced PTFE Vascular Prostheses as Total Artificial Heart Outflow Grafts." 2nd Brno Artificial Heart Symposium. (Brno)
57. Pantalos, G., Olsen, D., Burns, G., Mohammad, F., Long, J., Jacobs, H., Kim, S., Goldenberg, I., Everett, S., Gay, W. (1990): "100 ml Stroke Volume Elliptical TAH in 50 Kg Recipients (Year 2 Progress Report)." Cardiovascular Science and Technology: Basic and Applied, II. (Louisville)
58. Pantalos, G., Marks, J., Everett, S., Long, J., Kinoshita, M., Olsen, D. (1990): "Energetic Comparison of Ventricular Assist Techniques (Year 2 Progress Report)." Cardiovascular Science and Technology: Basic and Applied, II. (Louisville)
59. Pantalos, G. (1990): "Development and Testing of Artificial Hearts and Ventricular Assist Devices." Invited Lecture, The Johns Hopkins University, Center for Materials Research. (Baltimore)
60. Pantalos, G. (1990): "Artificial Heart Sound and Vibration Production: Its Measurement and Implications." Invited Lecture, U.S. Food and Drug Administration, Center for Devices and Radiological Health, Division of Mechanics and Materials. (Rockville)
61. Pantalos, G. (1990): "The Process of Getting an Experimental Cardiovascular Device into Clinical Use." 25th Annual Meeting of the Association for the Advancement of Medical Instrumentation. (Anaheim)
62. Pantalos, G. (1991): "Blood Flow Measurement in the Failing and Assisted Circulation." Invited Tutorial Lecture, FASEB 75th Annual Meeting. (Atlanta)
63. Pantalos, G., Long, J., Kinoshita, M., Marks, J., Everett, S., Robison, P., Bliss, R., Olsen, D. (1991): "Hemodynamic and Energetic Effects of the IABP and Hemopump in a Bovine Model of LV Dysfunction." American Society for Artificial Internal Organs 37th Annual Meeting. (Chicago)
64. Pantalos, G., Richenbacher, W., Karwande, S., Gay, W. (1991): "Determination of Critical Pericardial Dimensions in Patients with Dilated Cardiomyopathy." American Society for Artificial Internal Organs 37th Annual Meeting. (Chicago)
65. Pantalos, G. (1991): "Nurturing Space Education." 1991 "Visit to Mars" Workshop, Rocky Mountain NASA Space Grant Consortium. (Salt Lake City)

66. Pantalos, G., Long, J., Kinoshita, M., Marks, J., Everett, S., Bliss, R., Olsen, D. (1991): "*In Vivo* Evaluation of Hemopump Function in a Large Animal Model of LV Dysfunction and Fibrillation." Second International Workshop on Rotary Pumps. (Baden)
67. Pantalos, G., Marks, J. (1991): "Strategies and Problems of Rotary VADs for Weaning Off and Bridging to Transplantation." Keynote Lecture, Second International Workshop on Rotary Pumps. (Baden)
68. Pantalos, G., Richenbacher, W., Wollmering, M. (1991): "Intramyocardial Pressure for Assessing Viability of an Isolated, Perfused, Beating Donor Heart." XVIII Congress of the European Society For Artificial Organs. (Vienna)
69. Pantalos, G., Everett, S., Robison, P., Goldenberg, I., Olsen, D. (1991): "Organ Blood Flow and Neurohumoral Response in Bovine TAH Recipients During Graded Perfusion." XVIII Congress of the European Society for Artificial Organs. (Vienna)
70. Pantalos, G., Sharp, K. (1991): "Influence of Viscosity and Pressure on Prosthetic Valve Regurgitation in Pulsatile Blood Pumps." XVIII Congress of the European Society For Artificial Organs. (Vienna)
71. Pantalos, G., Kinoshita, M., Rowles, J., Tatsumi, E., White, K., Chiang, B., Everett, S., Olsen, D. (1992): "Intraoperative Changes in Right Atrial Pressure and Compliance Following TAH Implantation." American Society for Artificial Internal Organs 38th Annual Meeting. (Nashville)
72. Pantalos, G., Chandran, K., Shipkowitz, T., Goldman, P., Hansen, C. (1992): "Qualification of Intraventricular Flow Patterns of the Human Utah-100 TAH by Flow-Field Visualization." American Society for Artificial Internal Organs 38th Annual Meeting. (Nashville)
73. Pantalos, G., Burns, G., Mohammad, F., Dew, P., Kinoshita, M., Long, J., White, K., Olsen, D. (1992): "Current Experience with Reinforced PTFE Vascular Prostheses as Artificial Heart Outflow Grafts." American Society for Artificial Internal Organs 38th Annual Meeting. (Nashville)
74. Pantalos, G. (1992): "Preparation for the Clinical Use of Ventricular Assist Devices." Tutorial Workshop, Butterworth Hospital. (Grand Rapids)
75. Pantalos, G. (1992): "Current Experience with the Use of Rotary Blood Pumps as Ventricular Assist Devices at the University of Utah." Invited Lecture, National Research Center for Surgery. (Moscow)
76. Pantalos, G. (1992): "Clinical and Research Progress with Total Artificial Hearts." Invited Lecture, National Research Center for Surgery. (Moscow)
77. Pantalos, G., Long, J., Kinoshita, M., Marks, J., Everett, S., Bliss, R., Olsen, D. (1992): "Evaluation of Hemopump Function in a Large Animal Model of Ischemic Left Ventricular Dysfunction." INFA International Symposium on Rotary Blood Pumps. (Salt Lake City)
78. Pantalos, G., Bennett, T., Bennett, B., Charles, J., Sharp, K., Schurfranz, T., Everett, S. (1992): "The Effect of Gravitational Acceleration on Ventricular Filling." Biomedical Engineering Society Third Annual Fall Meeting. (Salt Lake City)
79. Pantalos, G. (1992): "The Effect of Gravitational Acceleration on Ventricular Filling: Preliminary Results from KC-135 In-flight Experiments." Invited Lecture, NASA Johnson Space Center, Space Biomedical Research Institute Seminar Series. (Houston)
80. Pantalos, G., Bennett, T., Sharp, K., Bennett, B., Charles, J., Schurfranz, T., Everett, S. (1992): "Influence of the Intraventricular Hydrostatic Pressure Difference on Artificial Heart Performance." AAMI Cardiovascular Science and Technology Conference. (Bethesda)



81. Pantalos, G., Dzemeshkevich, S., Konstantinov, B., Arseniev, S., Zhidkov, I., Koroteyev, A. (1992): "Reduction in Pressure Changes and Acceleration Production with a TAH Using Biologic Valves." AAMI Cardiovascular Science and Technology Conference. (Bethesda)
82. Pantalos, G. (1992): "Report on Artificial Heart Implantation Experiments Conducted in Moscow." NIH Fogarty International Center. (Bethesda)
83. Pantalos, G. (1993): "Clinical Use of Artificial Hearts and Ventricular Assist Devices." Rogers Heart Foundation Cardiovascular News - 1993. (Reno)
84. Pantalos, G. (1993): "Cardiovascular Research Applications on Earth and in Space." Rogers Heart Foundation Cardiovascular News - 1993. (Reno)
85. Pantalos, G., Bennett, T., Sharp, K., Bennett, B., Charles, J., Schurfranz, T., Everett, S. (1993): "Influence of Intraventricular Hydrostatic Pressure Difference on AH Performance." 39th Annual Meeting of the American Society for Artificial Internal Organs. (New Orleans)
86. Pantalos, G., Dzemeshkevich, S., Konstantinov, B., Arseniev, S., Zhidkov, I., Koroteyev, A. (1993): "Reduction in Pressure Changes and Acceleration Production with a TAH Using Biologic Valves." 39th Annual Meeting of the American Society for Artificial Internal Organs. (New Orleans)
87. Pantalos, G. (1993): "A Selected History of Circulatory Support." Mechanical Circulatory Support '93. (London)
88. Pantalos, G. (1993): "The Future of Artificial Hearts." Mechanical Circulatory Support '93. (London)
89. Pantalos, G. (1993): "Update on the Development, Testing and Clinical Use of Artificial Hearts and Ventricular Assist Devices." Invited Lecture, The Johns Hopkins University, Center for Materials Research.
90. Pantalos, G., Sharp, K., Woodruff, S., Lorange, R., Sojka, J., Lemon, M. (1993): "Characterization of Fluid Physics Effects on Cardiovascular Response to Microgravity [G-572]." NASA 1993 Shuttle Small Payloads Symposium. (Annapolis)
91. Pantalos, G., Sharp, K., Lorange, R., Woodruff, S., O'Leary S., Bennett, T. (1994): "Assessment of Artificial Heart Function with Changes in Recipient Posture." 40th Annual Meeting of the American Society for Artificial Internal Organs. (San Francisco)
92. Pantalos, G., Sharp, K. (1994): "The Role of Biophysical Factors in Cardiovascular Adaptation to Space Flight: An Update on the Hearts In Space Parabolic Flight Experiments." Invited Lecture, NASA Johnson Space Center, Space Biomedical Research Institute Seminar Series. (Houston)
93. Pantalos, G., Bennett, T., Sharp, K., Bennett, B., Charles, J., Schurfranz, T., Everett, S. (1994): "Space Life Science Research In A NASA Space Grant Consortium: Biophysical Components of Cardiovascular Adaptation to Space Flight." Invited Lecture, Universities Space Research Association Space Life Sciences Symposium. (Houston)
94. Pantalos, G. (1994), "Infant Ventricular Assist." Invited Lecture, Am Soc Extracorp Circ Workshop. (Little Rock)
95. Pantalos, G., Sharp, K., Woodruff, S., Lorange, R., O'Leary, S., Everett, S., Bennett, T., Schurfranz, T., Bennett, B., Dussack, L., Charles, J. (1994): "An Examination of Biophysical Phenomena in Cardiovascular Response to Weightlessness." 10th Annual Meeting, Am Soc Grav Space Bio. (San Francisco)

96. Pantalos, G. (1994): "Current Clinical Use of Artificial Hearts And Ventricular Assist Devices." Invited Lecture, The Ohio State University, Division of Circulation Technology. (Columbus)
97. Pantalos, G.M., Sharp, K., Bennett, T., Woodruff, S., O'Leary, S., Lorange, R., Charles, J.B. (1995): "Cardiovascular Response to Gravitational and Postural Changes." Paper No. 95-LS-83, AIAA/NASA Life Sciences and Space Medicine Conference '95. (Houston)
98. Pantalos, G.M., Sharp, K., Bennett, T., Woodruff, S., O'Leary, S., Lorange, R., Charles, J.B. (1995): "Cardiovascular Response to Gravitational and Postural Changes." 3rd Intl Head-Out Water Immersion Symposium. (Copenhagen)
99. Pantalos, G.M., Sharp, M.K., Woodruff, S.J., O'Leary, D.S., Gillars, K.J. (1995): "Simulation of Cardiovascular Adaptation to Weightlessness." 11th Annual Meeting, Am Soc Grav Space Bio. (Washington)
100. Pantalos, G., Sharp, K., Woodruff, S., O'Leary, S., Sojka, J., Lemon, M. (1995): "Characterization of Fluid Physics Effects on Cardiovascular Response to Microgravity [G-572] - Orbital Flight Preparations", NASA 1995 Shuttle Small Payloads Symposium. (Baltimore)
101. Pantalos, G., (1995): "Preparation of the ASAIO-STS Reliability Recommendation for Long-Term Blood Pumps." 41st Annual Meeting of the American Society for Artificial Internal Organs. (Chicago)
102. Pantalos, G., Hawkins, J., Juretech, J., Holfert, J., Long, J. Jr., Koppert, E., Burns, G. (1995): "Intraoperative Design Assessment of Cannulae for Infant Ventricular Assistance." 41st Annual Meeting of the American Society for Artificial Internal Organs. (Chicago)
103. Pantalos, G. (1995): "Biomechanical Perspectives on Cardiovascular Adaptation to Weightlessness." 4th International Institute for Adaptive and Spaceflight Physiology Colloquium. (Graz)
104. Pantalos, G. (1995): "Experimental Models of Reduced Gravity for Life Science Research." Austrian Society for Aerospace Medicine, Life Sciences Division. (Vienna)
105. Pantalos, G.M., Sharp, K., Hayes, J.K., Woodruff, S., O'Leary, S., Gillars, K.J. (1996): "A Biomechanical Mechanism of Cardiovascular Adaption to Weightlessness." AIAA/NASA Life Sciences and Space Medicine Conference '96. (Houston)
106. Pantalos, G., Hayes, J., Khanwilkar, P., Bearnson, G., Olsen, D. (1996): "Left Ventricular Simulator for Cardiovascular Device Testing." 42nd Annual Meeting of the American Society for Artificial Internal Organs. (Washington)
107. Pantalos, G., Everett, S., Allen, G., Goldenberg, I., Olsen, D. (1996): "Physiologic Response of Bovine TAH Recipients to Graded Perfusion." 42nd Annual Meeting of the American Society for Artificial Internal Organs. (Washington)
108. Pantalos, G. (1996): "Mechanical Circulatory Support for Pediatric Patients." Panel Presentation, 42nd Annual Meeting of the American Society for Artificial Internal Organs. (Washington)
109. Pantalos, G., Mathias, J., Sharp, M.K., Watenpaugh, D., Buckey, J., Parnis, S., Hargens, A., Thornton, W. (1996): "Variation in Esophageal and Abdominal Pressure in Humans During Parabolic Flight." 12th Annual Meeting, American Society for Gravitational and Space Biology. (Charlotte)
110. Pantalos, G., Mathias, J., Sharp, M.K., Watenpaugh, D., Buckey, J., Parnis, S., Hargens, A. (1997): "Variation in Esophageal and Abdominal Pressure in Humans During Parabolic and Space Flight." 68th Annual Scientific Meeting of the Aerospace Medical Association. (Chicago)

111. Pantalos, G., Bartkoviak, R., Royall, M., Minich, L.L. (1997): "Pediatric Cardiovascular Simulator for Device Evaluation and Training." 43rd Annual Meeting of the American Society for Artificial Internal Organs. (Atlanta)
112. Pantalos, G., Minich, L.L., Hawkins, J., Tani, L., Bolland, B., Bartkoviak, R., Veasy, L.G. (1997): "In Vivo Evaluation of IABP Function in an Infant Animal Model of LV Dysfunction." 43rd Annual Meeting of the American Society for Artificial Internal Organs. (Atlanta)
113. Pantalos, G., Bennett, T., Sharp, M.K., Woodruff, S., O'Leary, S., Gillars, K., Lemon, M., Sojka, J. (1997): "The Role of Gravitational Acceleration on Cardiac Diastolic Function." 13th Annual Meeting, American Society for Gravitational and Space Biology. (Washington)
114. D'anno, D., Yelle, J., Pantalos, G., Brown, T. (1997): "Cardiovascular Concerns for a Mars Mission: Autonomic and Biomechanical Effects." 12th Annual Man In Space Symposium. (Washington)
115. Pantalos, G. (1997): "What's New in Blood Pump Development?" Pathophysiology & Techniques of Cardiopulmonary Bypass: XVII. (San Diego)
116. Pantalos, G. (1997): "New Data and Speculation on Cardiovascular Adaptation to Space Flight." Space Biomedical Research Institute Seminar Series, NASA Johnson Space Center (Houston).
117. Pantalos, G., Bennett, T., Sharp, M.K., Woodruff, S., O'Leary, S., Gillars, K., Lemon, M., Sojka, J. (1997): "The Role of Gravitational Acceleration on Cardiac Diastolic Function." 13th Annual Meeting, American Society for Gravitational and Space Biology. (Washington)
118. "Cutaneous Tissue Perfusion in Humans with Posture and Acceleration Alterations." 69th Annual Meeting of the Aerospace Medical Association. (Seattle)
119. Pantalos G, Bennett T, Sharp MK, Woodruff S, O'Leary S, Gillars K, Lemon M, Sojka J. (1998): "The Role of Gravitational Acceleration in Artificial Heart Diastolic Function." 44th Annual Meeting of the American Society for Artificial Internal Organs. (New York)
120. Pantalos, G., Minich, L.L., Tani, L., McGough, E.C., Hawkins, J. (1998): "Estimation of Timing Errors For Intraaortic Balloon Pump Use In Pediatric Patients." 44th Annual Meeting of the American Society for Artificial Internal Organs. (New York)
121. Pantalos, G., Hart, S., Mathias, J., Sharp, M.K., Watenpaugh, D., Buckey, J., Parnis, S., Hargens, A. (1998) "Central Venous, Esophageal and Abdominal Pressure in Humans During Parabolic Flight." 14th Annual Meeting, American Society for Gravitational and Space Biology. (Houston)
122. Pantalos, G. (1998): "What Happens to Hearts In Space?" Surgical Grand Rounds, Cooper University Medical Center. (Camden)
123. Pantalos, G. (1998): "The Role of Gravitational Acceleration in Cardiac Diastolic Function." 16th Annual Houston Conference on Biomedical Engineering Research. (Houston)
124. Pantalos, G. (1998): "Artificial Hearts & VADs - Then, Now & Next." 1998 AmSECT Region V Fall Meeting. (Columbus)
125. Pantalos, G., Hart, S., Mathias, J., Sharp, M.K., Watenpaugh, D., Buckey, J., Hargens, A. (1999) "Venous and Esophageal Pressure in Humans During Parabolic Flight." Experimental Biology 99. (Washington)
126. Pantalos, G., Bennett, T. Sharp, M.K., Woodruff, S., O'Leary, S., Gillars, K., Everett, S., Schurfranz, T., Lemon, M. (1999): "Gravitational Component of Cardiac Diastolic Function." Experimental Biology 99. (Washington)

127. Pantalos, G., Marks, J., Richardson, E., Nelson, K., Long, J. (1999): " Successful Repair of a Ventricular Assist Device System Percutaneous Lead." 45th Annual Meeting of the American Society for Artificial Internal Organs. (San Diego)
128. Pantalos, G., Hart, S., Mathias, J., Sharp, M.K., Watenpugh, D., Buckey, J., Hargens, A. (1999): "A Biomechanical Perspective on Physiological Response to Head-Out Water Immersion, 6° Head-Down Tilt, and Weightlessness." 4th International Head-Out Water Immersion Symposium. (Graz)
129. Pantalos, G. (1999): "Current Clinical Experience with Temporary and Long-Term Mechanical Circulatory Support." American Association of Critical Care Nurses Regional Meeting. (Seattle)
130. Pantalos, G. (1999): "Recent Clinical Experiences with Cardiac Assist Devices and Total Artificial Hearts." University of Vienna Medical Center. (Vienna)
131. Pantalos, G. (1999): "Innovations for the Treatment of Chronic Diseases: Advances in Circulatory Support Devices." National Health Council and Medical Technology Leadership Forum Symposium: Patient Access to New Medical Technologies. (Washington)
132. Pantalos, G., Bennett, T., Sharp, M.K., Woodruff, S., O'Leary, S., Gillars, K., Everett, S., Lorange, R., Schurfranz, T., Lemon, M. (1999): "Effect of Gravitational Acceleration on Cardiac Diastolic Function." 1999 NASA Small Payloads Symposium. (Annapolis)
133. Pantalos, G. (2000) "Nuts and Bolts Cardiovascular Clinical Engineering." 2000 BMES Annual Meeting. (Seattle)
134. Pantalos, G., Bennett, T., Sharp, M.K., Woodruff, S., O'Leary, S., Gillars, K., Everett, S., Lorange, R., Schurfranz, T., Lemon, M. (2000): "Effect of Gravitational Acceleration on Cardiac Diastolic Function: The Hearts In Space Project. NASA Get Away Special Payload G-779." NASA STS-95 Post-Flight Symposium .(Bethesda)
135. Pantalos, G., Richardson, E., Nelson K., Pitt J.K., Long, J. (2000): "Effect of Patient Posture on Total Artificial Heart Performance." 46th Annual Meeting of the American Society for Artificial Internal Organs. (New York)
136. Pantalos, G., Mc Kellar, S., Nelson, K., Long, J. (2000): "Removable Left Ventricular Apical Plug for Left Ventricular Assist Device Removal." 46th Annual Meeting of the American Society for Artificial Internal Organs. (New York)
137. Pantalos, G., Nelson, K., Pitt, J.K., Long, J. (2000): "Enhanced Left Ventricular Assist System Patient Independence by Commercial Air Travel." 46th Annual Meeting of the American Society for Artificial Internal Organs. (New York)
138. Pantalos G., Minich L.L., Hawkings J., Tani L., McGough E., Veasy G. (2000): "The Role of the Intraaortic Balloon Pump in Pediatric Circulatory Support." First World Congress on Intraaortic Balloon Counterpulsation. (Athens)
139. Pantalos G., Koenig, S., Minich L.L., Hawkings J., Tani L., McGough E., Veasy G. (2000): "Optimizing Intraaortic Balloon Pump Function in Pediatric Patients." First World Congress on Intraaortic Balloon Counterpulsation. (Athens)
140. Pantalos G. (2000): "Current Clinical Experience with Total Artificial Hearts and Ventricular Assist Devices." Ohio State University Cardiothoracic Surgery Grand Rounds. (Columbus)
141. Pantalos GM, Koenig SC, Gillars KJ, Dowling R, Gray LA. (2001): "Characterization of Intraaortic Balloon Pump (UABP) Timing Errors Using an Adult Cardiovascular Simulator." 47th Annual Meeting of the American Society for Artificial Internal Organs.(New York)

142. Pantalos GM, Koenig SC, Dowling R, Gillars KJ, Gray LA. (2001): "Intraoperative Determination of Intraaortic Balloon Pump (IABP) Timing Errors in Adult Patients." 47th Annual Meeting of the American Society for Artificial Internal Organs. (New York)
143. Pantalos GM, Gillars KJ, Koenig SC, Ionan C, Gray LA. (2001): "Expanded Pediatric Cardiovascular Simulator for Research and Training." 47th Annual Meeting of the American Society for Artificial Internal Organs. (New York)
144. Pantalos G, Fasciano RW, Kung RTV, Dowling RD, Gray L. (2002): "Responsiveness of the AbioCor™ Artificial Heart to Changes in Patient Posture." 48th Annual Meeting of the American Society for Artificial Internal Organs. (New York)
145. Pantalos G, Reeves C, Dowling RD, Gray L. (2002): "Long-Term Fixation of External Parts of Implantable Circulatory Support Systems." 47th Annual Meeting of the American Society for Artificial Internal Organs. (New York)
146. Pantalos G, Koenig SC, Gillars KJ, Ewert DL. (2002): "Mock Circulatory System for Testing Cardiovascular Devices." BMES Proceedings. (Houston)
147. Pantalos GM, Sharp MK, Bennett TE. (2002): "The Hearts In Space Project: A 17 Year Review of Student-Based Investigations into Cardiovascular Response to Space Flight." Proceedings of the 6<sup>th</sup> International Head-Out Water Immersion Symposium (Houston).
148. Pantalos GM, Fasciano RW, Kung RTV, Dowling RD, Gray LA. (2002): "Biomechanical Insights into the Maintenance of Orthostatic Tolerance: When Cardiac Replacement and Space Flight Fly Together." Proceeding of the 6<sup>th</sup> International Head-Out Water Immersion Symposium. (Houston)
149. Pantalos G, Gray L, Shaw D, Berger E, Mussivand T. (2002): "Artificial Heart Therapy for End-Stage Heart Disease." BIO2002 Annual Convention. (Toronto)
150. Pantalos GM, Ionan CE, Gillars KJ, Koenig SC, Austin EH, Gray LA. (2002): "Extracorporeal Membrane Oxygenation (ECMO) vs. Pulsatile Blood Flow for Pediatric Left Ventricular Assistance: Preliminary Results." Heart Failure Society of America 6<sup>th</sup> Annual Scientific Meeting. (Boca Raton)
151. Pantalos, G.M. (2003): "A Selective History of Mechanical Circulatory Support." Proceedings of the AMSECT Region 6 Annual Meeting. (Columbus)
152. Pantalos, G.M., Gillars, K.J., Dowling, R.D., Etoch, S.W., Koenig, S.C., McMahan, A.M., Gray, L.A. (2003): "Intraaortic Balloon Pump (IABP) Timing Errors in Adult Patients." 48th Annual Meeting of the American Society for Artificial Internal Organs. (Washington)
153. Pantalos, G.M., Ionan, C.E., Gillars, K.J., Koenig, S.C., Austin, E.H., Gray, L.A. (2003): "Extracorporeal Membrane Oxygenation (ECMO) vs. Pulsatile Blood Flow for Pediatric Left Ventricular Assist." 48th Annual Meeting of the American Society for Artificial Internal Organs. (Washington)
154. Pantalos, G.M., Ionan, C.E., Gillars, K.J., Koenig, S.C., McMahan, A.M., Austin, E.H., Gray, L.A. (2004): "Extracorporeal Membrane Oxygenation (ECMO) vs. Intraaortic Balloon Pump for Pediatric Left Ventricular Assist." 50th Annual Meeting of the American Society for Artificial Internal Organs. (Washington)
155. Pantalos, G.M., Ionan, C. E., Koenig, S.C., Speakman, J.W., Lucci, C.S., Gartner, M.J. (2005): "Initial In vitro Performance Results for the 4" and 3" pCAS Pediatric Assist Device." 51st Annual Meeting of the American Society for Artificial Internal Organs. (Washington)

156. Pantalos, G.M., Ionan, C.E., Gillars, K.J., Koenig, S.C., McMahan, A.M., Mitchell, M.E., Austin, E.H., Gray, L.A., Jr., (2005): "Alternatives to Extracorporeal Membrane Oxygenation (ECMO) for Pediatric Circulatory Support." First International Conference on Pediatric Mechanical Circulatory Support Systems and Pediatric Cardiopulmonary Perfusion. (Hershey).
157. Pantalos, G., Janowiecki, C., Henson, J. Attum, B., Gillars, K., Edmonds, H., Koenig, S., Sharp, K., Sessler, D. (2005): "Chest Compression Efficacy for CPR in Microgravity." 15<sup>th</sup> Humans In Space Symposium. (Graz).
158. Pantalos, G.M. (2005): "Advances in Healthcare: Artificial Hearts and Ventricular Assist Devices." Leadership Kentucky Forum 2005. (Louisville)
159. Pantalos GM, Colyer JM, Mitchell ME, Speakman JW, Lucci CS, Johnson G, Gartner MJ. (2006): "In Vivo Performance of the 3<sup>rd</sup> Pediatric Cardiopulmonary Assist System." 52<sup>nd</sup> Annual Meeting of the American Society for Artificial Internal Organs. (Chicago)
160. Pantalos G, Giridharan G, Colyer J, Mitchell M, Speakman J, Lucci C, Johnson G, Gartner M, Koenig S. (2006): "Effect of Continuous and Pulsatile Flow Left Ventricular Assist on Pulsatility in a Pediatric Animal Model of Left Ventricular Dysfunction: Early Results." Second International Conference on Pediatric Mechanical Circulatory Support Systems and Pediatric Cardiopulmonary Perfusion, (Toronto)
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162. Pantalos, G. (2006): "Current and Emerging Blood Pumping Systems: Opportunities for Modeling Techniques." 5<sup>th</sup> World Congress of Biomechanics, (Munich).
163. Pantalos, G.M., Nair, N., Austin, E.H., Mascio, C., Johnson, G., Gartner, M., Sharp, M.K. (2007): "Variability of Pediatric Blood Viscosity." Third International Conference on Pediatric Mechanical Circulatory Support Systems and Pediatric Cardiopulmonary Perfusion, (Hershey)
164. Pantalos, G.M., Merkle, T., Speakman, J., Johnson, G., Gartner, M. (2007): "In Vitro Performance Evaluation of the Revised Pediatric Cardiopulmonary Assist System (pCAS)." Third International Conference on Pediatric Mechanical Circulatory Support Systems and Pediatric Cardiopulmonary Perfusion, (Hershey)
165. Pantalos, G.M., Angouras, D. Lucas, J.J., Peroulis, M.G., Dimitriou, C.A., Kostomitsopoulos, N.G., Sokolis, D.P. Karayannacos, P.E. (2007): "Initial Assessment of Dual Intraaortic Balloon Pump Efficacy." 53<sup>rd</sup> Annual Meeting of the American Society for Artificial Internal Organs (Chicago)
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167. Pantalos, G.M. Merkle, T., Speakman, J., Johnson, G., Gartner, M., (2008): "In Vitro Performance Evaluation of the Integrated Pediatric Cardiopulmonary Support System (pCAS)." Fourth International Conference on Pediatric Mechanical Circulatory Support Systems and Pediatric Cardiopulmonary Perfusion, (Portland)
168. Pantalos, G.M., Markley, T., Austin, E.H., Mascio, C. (2008): "Mock Circulation Simulation of Pediatric Extracorporeal Membrane Oxygenation (ECMO) in the Presence of a Congenital Heart

- Defect.” Fourth International Conference on Pediatric Mechanical Circulatory Support Systems and Pediatric Cardiopulmonary Perfusion, (Portland)
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  170. Pantalos, G. (2009): “If St. Francis Ever Tends the Pearly Gates, I May be in Big Trouble!” AALAS Kentucky Branch, District 5 Annual Meeting (Louisville)
  171. Pantalos G, Horrell T, Sahetya S, Speakman J, Johnson G, Gartner M (2009): “Performance of the Enson Rev 5+ Pediatric Cardiopulmonary Assist System (pCAS) in a Small Infant Animal. 25<sup>th</sup> Annual CNMC Symposium: ECMO and the Advanced Therapies for Respiratory Failure, (Keystone).
  172. Pantalos GM. (2009): “Maximizing Intra-aortic Balloon Pump Efficacy.” XXXVI Annual ESAO Congress, (Compiègne).
  173. Pantalos GM, Justice E, Fill B, Gartner M. (2010): “Initial *In Vivo* Evaluation of a Hemodialyzing System for Transportable Treatment “ASAIO J ,56(2), p.142. 56th Annual Meeting of the American Society for Artificial Internal Organs (Baltimore).
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  175. Pantalos, G.M. (2011): “Federal Support for Medical Devices: A Clear Return on Investment.” AIMBE Federal Symposium, Capitol Hill (Washington).
  176. Pantalos, G., Kennedy, T., Ward, R. (2012): “*In Vitro* Feasibility Assessment of a Mobile System to Initiate Acute Cardio/Pulmonary/Renal Assistance.” 58th Annual Meeting of the American Society for Artificial Internal Organs (San Francisco).
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  178. Pantalos, G.M., Gevedon, T., Austin, E.A. III, Mascio, C.E. (2013): “Effect of Atrial Septostomy Size on Hemodynamics During Mock Circulation Simulation of Extracorporeal Membrane Oxygenation Support for Pediatric Systemic Ventricular Failure.” 59<sup>th</sup> Annual Meeting of the American Society for Artificial Organs (Chicago).
  179. Pantalos, G., Hayden, J., Burgess, J., Antaki, J. (2013): “Development and Evaluation of a Hermetic Surgical System for Reduced Gravity.” 51<sup>st</sup> American Institute of Aeronautics and Astronautics Sciences Meeting (Grapevine).
  180. Pantalos, G.M., Crigger, M.J., Kennedy, T.J., Hayden, J.A., Burgess, J.E., Antaki, J.F. (2013): “Parabolic Flight Evaluation of a Hermetic Surgical System for Reduced Gravity.” 2013 NASA Human Research Program Investigators’ Workshop (Galveston).
  181. Pantalos G, Kennedy T, Hover G, Ward R (2013): “Ground and Flight Assessment of a Mobile System to Initiate Acute Cardio/Pulmonary/Renal Support.” 12th International Conference on Complex Acute Illness (Budapest).
  182. Pantalos, G.M., Crigger, M.J., Kennedy, T.J., Montidoro, T., Hayden, J.A., Burgess, J.E., Antaki, J.F. (2014): “Parabolic Flight Evaluation of a Hermetic Surgical System for Reduced Gravity.” 2014 NASA Human Research Program Investigators’ Workshop (Galveston).

183. Pantalos G, Snider J, Joseph E, Miller KH, Martin K, Ziegler C, Calhoun A (2014): "Pediatric Mock Circulation for Training and Clinical Simulation." ELSO 25th Annual Meeting (Ann Arbor)
184. Pantalos G (2014): "Consideration of Surgical Capabilities for Healthcare Delivery during Exploration Space Missions." Annual Meeting of the American Society for Gravitational and Space Research (Pasadena)
185. Pantalos, G.M., Crigger, M.J., Kennedy, T.J., Joseph, E., Snider, J., Montidoro, T., Burgess, J.E., Antaki, J.F. (2015): "Parabolic Flight Evaluation of a Hermetic Surgical System for Reduced Gravity – Annual Update." 2015 NASA Human Research Program Investigators Workshop (Galveston)
186. Pantalos G.M., Pyles L, Ngha B, Hughes K, Martin K, Ziegler C, Sparks J, Calhoun A. (2015): "Single Ventricle Model for Clinical Simulation Training." 61<sup>st</sup> Annual Meeting of the American Society for Artificial Internal Organs (Chicago)
187. Pantalos G, Snider J, Joseph E, Hughes K, Martin K, Ziegler C, Pyles L, Ngha B, Swiergosz A, Calhoun A. (2015) "Pediatric Mock Circulation for Instruction and Clinical Simulation." 61<sup>st</sup> Annual Meeting of the American Society for Artificial Internal Organs (Chicago)
188. Pantalos G, Crigger M, Kennedy T, Joseph E, Jain I, Ayvali E, Meyer A, Morales C, Montidoro T, Burgess J, Antaki J. (2015): "Parabolic Flight Evaluation of an Aqueous Immersion Surgical System for Reduced Gravity." NSBRI Surgical Capabilities for Exploration and Colonization Space Flight Symposium (Houston)
189. Pantalos G, Crigger M, Kennedy T, Joseph E, Jain I, Roussel T, Shields G, Ayvali E, Meyer A, Morales C, Choset H, Burgess J, Antaki J. (2016): "Parabolic Flight Evaluation of a Hermetic Surgical System for Reduced Gravity – Annual Update." 2016 NASA Human Research Program Annual Investigators Workshop (Galveston)
190. Pantalos G.: (2016): Use of a Physical Model of the Infant Cardiovascular System for ECMO Simulation Training. Workshop Leader, Simulation Workshop. 32nd Annual CNMC Symposium: ECMO and the Advanced Therapies for Respiratory Failure (Keystone CO)
191. Pantalos, G, Ngha B, Pyles L, Swiergosz, A, Hughes Miller Karen, Martin K, Ziegler C, Sparks J, Calhoun A. (2016): "Simulation of Infant ECMO and VAD Support," 32nd Annual CNMC Symposium: ECMO and the Advanced Therapies for Respiratory Failure (Keystone CO)
192. Pantalos GM, Cahalan L, Gartner M, Cahalan P. (2016): "A Novel Device for Venous Retroperfusion of the Myocardium; Preliminary In Vitro Results." 62nd Annual Meeting of the American Society for Artificial Internal Organs, (San Francisco)
193. Pantalos G, Snider J, Joseph E, Hughes K, Martin K, Ziegler C, Pyles L, Ngha B, Swiergosz A, Calhoun A. (2016) "Infant Mock Circulation for ECMO and VAD Support." 62nd Annual Meeting of the American Society for Artificial Internal Organs, Mock Circulation Competition – First Place (San Francisco)
194. Pantalos G. (2016): Use of a Physical Model of the Infant Cardiovascular System for ECMO and VAD Simulation Training. Workshop Leader, Simulation Workshop. Cincinnati Children's Hospital Medical Center Regional Pediatric VAD Collaborative (Cincinnati)
195. Pantalos G. (2016): Adventures of a Surgical Explorer – With and Without Gravity." Invited Presentation, 56<sup>th</sup> Annual Meeting of the Lilliputian Pediatric Surgical Society (Louisville)



196. Pantalos G, Crigger M, Warner S, Lents G, Mallonee CJ, Pereira D, Harrison S, Ackerman L, Higginson T, Barrow B, Callahan S, Armagno A, Fairfax J, Roussel T, Sutton E, Sharp MK, Burgess J, Antaki J. (2017): "Parabolic and Suborbital Flight Evaluation of an Aqueous Immersion Surgical System For Reduced Gravity: NASA Payload 49-P/155-S Annual Update." 2017 NASA Human Research Program Investigators' Workshop (Galveston)
197. Pantalos G, Kennedy T, Mallonee CJ, Harrison S, Sutton E. (2017): "Intraabdominal and Intraesophageal Pressure in Reduced Gravity: Implications for Laparoscopic Surgery During Exploration Space Missions." Ann Meeting Aerospace Med Assn (Denver)
198. Pantalos G. (2017): "Development of an Aqueous Immersion Surgical System for Reduced Gravity." Ann Meeting Aerospace Med Assn (Denver)
199. Pantalos G, Higginson T, Barrow B, Deshpande R, Heidel J, Riggs A, Mallonee CJ, Pereira D, Harrison S, Roussel T, Sharp K, Sutton E, Dhamotharan V, Burgess J, Antaki A. (2017): "Surgical Capabilities Development for Reduced Gravity," Next Generation Suborbital Research Conference (Broomfield, CO)
200. Pantalos G, Higginson T, Barrow B, Heidel J, Deshpande R, Riggs A, Mallonee CJ, Pereira D, Harrison S, Snider J, Hall S, Roussel T, Sutton E, Sharp K, Dhamotharan V, Burgess J, & Antaki J. (2018): "Suborbital flight evaluation of an aqueous immersion surgical system for reduced gravity." NASA Flight Opportunities Program: Payload 155-S Annual Update, 2018 NASA Human Research Program Investigators' (Galveston)
201. Pantalos, G, Sutton E, Sharp K, Miller K, Grant G, Broderick T, Wu J, Badger J, Doerr H. (2018): "Creating Surgical Capabilities for Exploration Space Flight." 2018 NASA Human Research Program Investigators' Workshop (Galveston)
202. Pantalos G, Drummond A, Boland E, Tourro J, Morley D, Burkhoff D. (2018): "In Vitro Simulation of Partial Left Ventricular Assist in Adults." 64th Annual Meeting of the American Society for Artificial Internal Organs (Washington, DC)
203. Pantalos G, Hall S, Snider J, Heidel J, Riggs A, Hughes-Miller K, Martin K, Ziegler C, Sparks J, Calhoun A. (2018): "KardioKid Infant Mannequin for Hands-on Training and Simulation." 64th Annual Meeting of the American Society for Artificial Internal Organs (Washington, DC)
204. G Pantalos, T Higginson, B Barrow, J Heidel, R Deshpande, L Ackerman, M Hedge, M Koetter, K Sharp, E Sutton, T Roussel, V Dhamothara, J Burgess, J Antaki.(2019): "Suborbital Flight Evaluation of an Aqueous Immersion Surgical System for Reduced Gravity." 2019 NASA Human Research Program Investigators' Workshop (Galveston)
205. Jain, S, Warner, S, Greenbaum, M, Hedge, M, Hailey, G, Pantalos (2019): "Using Conventional Methods for Trauma Fluid Resuscitation in Reduced Gravity." 2019 NASA Human Research Program Investigators' Workshop (Galveston)
206. J Badger, L Farrell, D Naftalovich, J Wu, T Broderick, G Pantalos (2019): "Robotic Assistance in Surgical Tasks for Exploration Space Flight." NASA Human Research Program Investigators' Workshop (Galveston)