SHORT BIOGRAPHICAL SKETCH OF KWANG-CHUN (K.C.) PARK

(For full vitae: http://www.colorado.edu/engineering/CAS/KCPark.d/KCParkHome.d/KCPark.html)
(Version as of August 2013)

PRESENT AFFILIATION

Professor
Department of Aerospace Engineering Sciences
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College of Engineering and Applied Science
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CURRENT RESEARCH ACTIVITIES

Computational multiphysics including fluid-structure interaction, *Design of membrnanous structures*, *Mechanical characterization of microelectro-mechanical systems (MEMS)*, *Contact-impact problems for heterogeneous systems*, *Engineering system identification*,

EXPERIENCE

6/1987-present: Department of Aerospace Engineering Sciences, Boulder, Colorado. *Professor.*
Founding Director, the Center for Space Structures and Controls Director (11/1985 -8/1988).
Director of Center for Aerospace Structures (CAS) (6/1991-8/1996).
Initiated a new graduate program in space structures and computational mechanics (11/1985)
Technical Director, a NASA-sponsored Center for Space Construction ((9/1987-8/1988).

6/2009-present: Korea Advanced Institute of Science and Technology, Daegjeon, Korea *WCU Invited Professor.* Six months/year.

2002-2009: Korea Advanced Institute of Science and Technology, Daegjeon, Korea *Distinguished Invited Professor.* Three months/year.

1997-present: Conservatoire National des Arts et Metiers, Paris, France. *Professeur Invité* during the summer.

9/1999 - 6/2000 Department of Aeronautics and Astronautics, Massachusetts Institute of Technology, Cambridge, Mass. *Visiting Professor.*

3/2000-5/2000: Institute of Space and Astronautical Science, Sagamihara, Kanagawa 229, Japan. *Visiting Professor.*

5/1996-7/1996 Summer, 1996: University of Paris VI and Joseph Frourier University of Grenoble *Professeur Invité.*

1/1992-12/1992: Fall, 1992 Institute of Space and Astronautical Science, Sagamihara, Kanagawa 229, Japan. *Visiting Professor.*

Summer, 1992: Laboratoire de Mecanique et Technologie, Ecole Normale Superieure de Cachan, 94235 Cachan Cedex, France. *Professeur Invité.*

Spring, 1992: Department of Aeronautics and Astronautics, Massachusetts Institute of Tech-

nology, Cambridge, Mass. *Visiting Professor*.

11/1985-5/1987: Department of Mechanical Engineering, Boulder, Colorado. *Professor*.

4/1980-10/1985: LOCKHEED MISSILES & SPACE CO., INC. Palo Alto Research Laboratory, Palo Alto, California. *Senior Staff Scientist*.

10/1979-3/1980: NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, Langley Research Center, Hampton, Virginia. *Visiting Scientist*.

4/1974-9/1979: LOCKHEED MISSILES AND SPACE COMPANY, INC., Palo Alto Research Laboratory, Palo Alto, California. *Research Scientist*.

4/1973-3/1974: LOCKHEED-CALIFORNIA COMPANY, Burbank, California. *Senior Structural Engineer*.

3/1968-7/1969: KOREA INSTITUTE OF SCIENCE AND TECHNOLOGY, Seoul, Korea. *Mechanical Engineer*.

1/1966-2/1968: HANKUK MACHINE INDUSTRIAL COMPANY,Inchon, Korea. *Junior Design Engineer*.

EDUCATION

Ph.D. (5/1975), Applied Mechanics and Systems Analysis, Clarkson College (1/1971-5/1975).
M.S. (6/1970), Controls, Stanford University, Stanford, California (9/1969-12/1970).
BSME (2/1966), Inha Institute of Technology, Inchon, Korea (3/1962-2/1966).

PROFESSIONAL ACTIVITIES

Technical Program Chairman, 1990 AIAA Dynamics Specialist Conference
Member, NASA/OAST Space Systems and Technology Advisory Committee (1985–1993)
Editorial Board, Communications in Applied Numerical Methods (1980-2004).
Editorial Board, Int'l Journal of Numerical Methods in Engineering (1978-present)
Editorial Board, Computers & Structures: An International Journal (1998-2004)
Editorial Board, International Journal of Computational Engineering Science (IJCES) (1996-2003)
Editorial Board, Computer Methods in Engineering Sciences (CMES) (1996-2002)

HONORS AND AWARD Fellow (ASME), Recipient of the 2011 Computational Science and Engineering Award of the US Association for Computational Mechanics (USACM).

SELECT RECENT INVITED LECTURES

2013:

Title: Recent Developments in Discontinuous Wave Propagation Algorithms: There is Plenty Room for Improving Second-Order Methods. Semi-Plenary Lecture, COMPDYN2013 Conference, Kos Island, Greece, June 13, 2013.

Park, K. C. "Title: Partitioned Multiphysics and Multiscale Simulation: Its Origin, Present Practice and Future Challenge," Istanbul Technical University, Istanbul, Turkey, January 9, 2013.

2012:

Park, K. C. "Title: Partitioned Multiphysics and Multiscale Simulation: Its Origin, Present Practice and Future Challenge," Technical University of Prague, Prague, Republic of Czech, October

4, 2012.

2011:

Park, K. C. "A method for computation of discontinuous wave propagation in heterogeneous solids," *Given as a GALCIT Seminar*, California Institute of Technology, Pasadena, CA, November 11, 2011.

Park, K. C. "Variational algorithms for treating high gradient phenomena in the dynamics of solids." *Semi-Plenary Lecture* at COMPDYN2011 (3rd International Conference on Computational Dynamics and Earthquake Engineering), 26-28 May 2011, Corfu, Greece.

Park, K. C. "A Computational and Experimental Modeling of the Physics of Nonlinear Sloshing and Internal Wave Breaking." *Plenary Lecture* at Coupled2011 (IV International Conference on Computational Methods for Coupled Problems in Science and Engineering), 20-22 June 2011, Kos Island, Greece.

2010:

Invited Seminar to be given: Paradigm Changes from Analytical to Data-Oriented Engineering Modeling: Is It a Boon or Menace? Department of Mechanical Engineering, Stanford University, Stanford, CA, USA. 18 November 2010.

2008:

Keynote Lecture: Aerospace Structures: Present Status, Future Challenges, and Research Needs. the KSAS-JSASS Meeting, Jeju Island, South Korea 20 November 2008

Special Session in honor of Professor O. C. Zienkiewicz: Staggered Analysis Procedures Revisited Initial Fondest Hopes, Ensuing Applications, and Future Prospects. WCCM-VIII, Venice, 02 July 2008.

2007:

Keynote Lecture: Partitioned Modeling and Analysis of Coupled Dynamical Systems, the Annual Meeting of Korean Society of Mechanical Engineers, Busan, Korea, 01 June 2007.

SELECTED MOST RECENT PUBLICATIONS

Web of Science citations: over 1,850 citations with h-index=27
(http://www.researcherid.com/rid/E-8898-2010);
Google scholar citations: over 4,300 with h-index=36, i10-index =84
(http://scholar.google.com/citations?user=wut_ihkAAAAJ)

1. S. S. Cho, H. Huh and K. C. Park, "A method for multi-dimensional wave propagation analysis via component-wise partition of longitudinal and shear waves," International Journal for Numerical Methods in Engineering, Volume 95, Issue 3, pages 212237, 20 July 2013. DOI: 10.1002/nme.4495

2. Min-Soo Jeong and In Lee, Seung-Jae Yoo, K. C. Park, Torsional Stiffness Effects on the Dynamic Stability of a Horizontal Axis Wind Turbine Blade. *Energies* 2013, 6(4), 2242-2261; doi:10.3390/en6042242.

3. H.-L. Xing, J. H. Jeon, K. C. Park and I. K. Oh, "Active Disturbance Rejection Control for Precise Position Tracking of Ionic Polymer-Metal Composite Actuators ," IEEE/ASME Transactions on Mechatronics, Vol. 18, 86-95, 2013.

4. Hossein Moeinkhah, Jin-Young Jung, Jin-Han Jeon, Ali Akbarzadeh, Jalil Rezaeepazhand, K

C Park and Il-Kwon Oh, "How does clamping pressure influence actuation performance of soft ionic polymermetal composites?," *SMART MATERIALS AND STRUCTURES* Volume: 22 Issue: 2 Article Number: 025014 DOI: 10.1088/0964-1726/22/2/025014 Published: FEB 2013

5. J. A. González, K. C. Park, I. Lee, C. A Felippa and R. Ohayon, "Partitioned Vibration Analysis of Internal Fluid-Structure Interaction Problems," International Journal for Numerical Methods in Engineering, 2012. DOI: 10.1002/nme.4336

6. K. C. Park, S.J Lim and H. Huh, "A method for computation of discontinuous wave propagation in heterogeneous solids: basic algorithm description," International Journal for Numerical Methods in Engineering, Published online: 8 FEB 2012 — DOI: 10.1002/nme.4285.

7. J. A. González and K. C. Park, "A simple explicitimplicit finite element tearing and interconnecting transient analysis algorithm," International Journal for Numerical Methods in Engineering 2012; 89:1203–1226.

8. Markovic D, Ibrahimbegovic A, Park KC, Partitioning based reduced order modelling approach for transient analyses of large structures, *ENGINEERING COMPUTATIONS*, Volume: 26 Issue: 1-2 Pages: 46-68. 2009.

9. Moonseok Lee, Youn-Sik Park, Youngjin Park, K.C. Park, New approximations of external acousticstructural interactions: Derivation and evaluation, *Computer Methods in Applied Mechanics and Engineering*, Vol. 198 (15-16) pp.1368-1388, 2009

10. M. Ross, M. A. Sprague, C. A. Felippa and K. C. Park, Treatment of acoustic fluid-structure interaction by localized Lagrange multipliers and comparison to alternative interface coupling methods, *Computer Methods in Applied Mechanics and Engineering*, 198 (9-12), p.986-1005, 2009.

ADDITIONAL SELECT PUBLICATIONS

Selected Publications on Multiphysics

1. K.C. Park, R. Ohayon, C.A. Felippa and J.A. Gonzalez, Partitioned formulation of internal and gravity waves interacting with flexible structures, Computer Methods in Applied Mechanics and Engineering, Volume 199, Issues 9-12, 15 January 2010, Pages 723-733

2. Moonseok Lee, Youn-Sik Park, Youngjin Park, K.C. Park, New approximations of external acoustic-structural interactions: Derivation and evaluation, Computer Methods in Applied Mechanics and Engineering, Vol. 198 (15-16) pp.1368-1388, 2009

3. M. Ross, M. A. Sprague, C. A. Felippa and K. C. Park, Treatment of acoustic uid-structure interaction by localized Lagrange multipliers and comparison to alternative interface coupling methods, Computer Methods in Applied Mechanics and Engineering, 198 (9-12), p.986-1005, 2009.

4. Park, K. C., Felippa, C. A. and Ohayon, R., Partitioned Formulation of Internal Fluid- Structure Interaction Problems via Localized Lagrange Multipliers," Computer Methods in Applied Mechanics and Engineering, 190(24-25), 2001, 2989-3007.

5. Park, K. C., Gumaste, Udayan, and Felippa, C. A., A Localized Version of the Method of 1Lagrange Multipliers and its Applications," Computational Mechanics: an International Journal, 24 (2000) 6, 463-475.

6. Park, K. C. and Felippa, C. A., A Variatioanl Principle for the Formulation of Partitioned Structural Systems," International Journal of Numerical Methods in Engineering, vol. 47, 2000, 395-418.

7. Felippa, C. A., Park, K. C. and Farhat, C., Partitioned Analysis of Coupled Systems," Computer Methods in Applied Mechanics and Engineering, 190(24-25), 2001, 3247-3270.

8. Park, K. C. and Felippa, C. A., A Variational Framework for Solution Method Developments in Structural Mechanics,"Journal of Applied Mechanics, March 1998, Vol. 65/1, 242-249.

9. Felippa, C. A. and Park, K. C., Staggered Transient Analysis Procedures for Coupled-Field Mechanical Systems:Formulation," Comp. Meth. Appl. Mech. Eng., 24, (1980) 61-111.
10. Park, K. C., Partitioned Transient Analysis Procedures for Coupled-Field Problems: Stability Analysis," Journal of Applied Mechanics, 47, 1980, pp.370-376.

Selected Publications on Dynamics of Aerospace Structures and Mechanical Systems

1. K. C. Park, Carlos A. Felippa, Roger Ohayon, The d'Alembert-Lagrange principal equations and applications to floating flexible systems, International Journal for Numerical Methods in Engineering, Vol. 77(8), 2009, pp. 072-1099.
2. H. Sakamoto, K. C. Park, and Y. Miyazaki, Distributed and localized active vibration isolation in membrane structures, Journal of Spacecraft and Rockets, 43(5): 1107-1116, September-October 2006.
3. Park K. C. and Park, Yong Hwa, "Partitioned Component Mode Synthesis via A Flexibility Approach," AIAA Journal, 2004, vol.42, no.6, 1236-1245.
Multibody Dynamics Analysis," International Journal for Numerical Methods in Engineering, 36, 1071-1083 (1993).
4. Downer, D. D. and Park, K. C., Formulation and Solution of Inverse Spaghetti Problem: Application to Beam Deployment Dynamics," AIAA Journal, 31, February 1993, 339-347.
pp. 343-353.
5. Park, K. C., Evaluating Time Integration Methods for Nonlinear Dynamics Analysis," in: Finite Element Analysis of Transient Nonlinear Structural Behavior(T. Belytschko and T. L. Geers, editors) , ASME Applied Mechanics Symposia, AMD-vol.14, 1975, pp.35-58.
6. Park, K. C., An Improved Stiffly Stable Method for Direct Integration of Nonlinear Structural Dynamics Equations," Journal of Applied Mchanics, 42, 1975, pp.464-470.

For publications in Contact-Impact Problems, Structural System Identification, BEM-FEM Coupling, Structural Damage Detection, Parallel Computing, Joint Modeling and others, refer to my full vitae