

**Keith A. Holsapple**  
**Professor of Aeronautics and Astronautics**  
**University of Washington, Seattle, WA**

**Education**

**Ph.D. in A.A.**, (Engineering Mechanics), University of Washington, 1966  
**M.S. in Engineering**, University of Washington, 1964  
**B.S. in A.E.**, University of Washington, 1960

**Positions Held**

**Professor:** 1982-Present  
**Associate Dean**, College of Engineering: 1988-1997  
**Associate Professor:** 1973-1982  
**Assistant Professor:** 1966-1972  
**Predocctoral Lecturer:** 1965-1966

**Research Interests:**

Impact Processes  
Planetary Sciences  
Numerical Methods  
Finite Element Methods  
Structures

**Publications of Last 5 years:** (Many of these are available at [http://adsabs.harvard.edu/physics\\_service.html](http://adsabs.harvard.edu/physics_service.html) )

**Holsapple, K. A.**, "On the Flow and Fluidization of Granular Materials: Applications to Large Lunar Craters, Cliff Collapses and Asteroid Shapes." 42nd Lunar and Planetary Science Conference, Contribution # 1608, 2011.

Housen, K. R., **Holsapple, K. A.**, "Momentum Transfer in Hypervelocity Collisions", 42nd Lunar and Planetary Science Conference, Contribution # 2363, 2011.

Ormö, J.; Housen, K. R.; **Holsapple, K. A.**; Lepinette, A.; Melero Asensio, I.; Torres Redondo, J., "Low-Velocity Experimental Impact Cratering Facility for the Study of Wet Target Impacts", 42nd Lunar and Planetary Science Conference, Contribution # 1608, 2011.

Housen, Kevin R.; **Holsapple, Keith A.**, "Ejecta from impact craters", *Icarus*, 211, 1, p. 856875, 2011.

Housen, K. R.; **Holsapple, K. A.**, "Asteroids Without Ejecta", 41st Lunar and Planetary Science Conference, Contribution No. 1533, 2010.

Pierazzo, E.; Collins, G. S.; **Holsapple, K. A.**; Housen, K. R.; Korycansky, D. G.; Plesko, C. S.; Price, M. C.; Wünnemann, K., "Impact Hydrocode Benchmark and Validation Project: Impacts Into Cohesionless Soil", *41st Lunar and Planetary Science Conference*, LPI Contribution No. 1533, 2010.

**Holsapple, Keith A.**, "On YORP-induced spin deformations of asteroids", *Icarus*, 205, 2, 430, 442, 2010.

Ormö, J., Lepinette, A., Sturkell, E., Lindström, M., Housen, K., **Holsapple, K.**, "Dynamics of the water resurge at marine-target impact craters analyzed with a combination of low-velocity impact experiments and numerical simulation". Accepted to appear in the Geological Society of America Special Publication "Large Meteorite Impacts IV", Feb. 2009.

**Holsapple, K. A.**, "On the Strength of small bodies of the Solar System", *Planetary and Space Science*, 2009.

**Holsapple, K. A.**, "The deformation of asteroids by YORP spin-up", *Lunar and Planetary Science XXXL*, March 2009.

Ormö, J., Lepinette, A., Sturkell, E., Lindström, M., Housen, K. **Holsapple, K.** "Dynamics of the water resurge at Marine-target impact craters", *Lunar and Planetary Science XXXL*, March 2009.

**Holsapple, K.A.** and Patrick Michel, "Tidal disruptions II: A continuum theory for solid bodies with strength, with applications to the satellites of the Solar System", *Icarus*, Volume 193, Issue 1, p. 283-30, 2008.

**Holsapple, K. A.**, " Spinning rods, elliptical disks and solid ellipsoidal bodies: Elastic and plastic stresses and limit spins", *International Journal of Non-Linear Mechanics* 43, 8, 2008.

- Pierazzo, N. Artemieva, E. Asphaug, E.C. Baldwin, J. Cazamias, R. Coker, G.S. Collins, D.A. Crawford, T. Davison, D. Elbeshausen, K.A. **Holsapple**, K.R. Housen, D.G. Korycansky, K. Wünnemann. "Validation of numerical codes for impact and explosion cratering". *Meteoritics and Planetary Science* 43, 12, 2008.
- Holsapple**, K. A., "Spin limits and spin fission of 100 km asteroids", (Abstract) *Asteroids, Comets and Meteorites*, 2008, Baltimore, July 2008.
- Holsapple**, K. A., "Do 100 km asteroids spin-fission into binaries?", (Abstract) *Workshop on Binary Asteroids*, Meudon, France May, 2008.
- Holsapple**, K. A., "Porous material models for impact studies", *Lunar and Planetary Science XXXIX paper 1391*, March 2008.
- Pierazzo, E.; Artemieva, N. A.; Baldwin, E. C.; Cazamias, J.; Coker, R. F.; Collins, G. S.; Crawford, D. A.; Davison, T.; **Holsapple**, K. A.; Housen, K. R.; Korycansky, D. G.; Wünnemann, K., "The Impact Hydrocode Benchmark and Validation Project: Results of Validation Tests", (2 page paper) *Lunar and Planetary Science XXXIX paper 1391*, p 1177, March 2008.
- Holsapple**, K. A. and Kevin R. Housen, "A Crater and Its Ejecta: An Interpretation of Deep Impact", in *Deep Impact at Comet Tempel 1*, Elsevier, p. 586-597. 2007.
- Holsapple**, K.A. and Patrick Michel, "Tidal disruptions II: A continuum theory for solid bodies with strength, with applications to the satellites of the Solar System", *Icarus*, Volume 193, Issue 1, p. 283-30, 2007.
- Holsapple**, K. A., " Spin limits of Solar System bodies: From the small fast-rotators to 2003 EL61", *Icarus*, Volume 187, Issue 2, p. 500-509. 2007.
- Holsapple**, K. A., "On the Strength of small bodies of the Solar System", VII Workshop on Catastrophic Disruption in the Solar System (CD07), Alicante, Spain, June, 2007.
- Holsapple**, K. A. and Kevin R. Housen, "A Crater and Its Ejecta: An Interpretation of Deep Impact", *Icarus*, Volume 187, Issue 1, p. 345-356. 2007.
- Pierazzo, E., N. Artemieva, E. Asphaug, J. Cazamias, R. Coker, G.S. Collins, G. Gisler, K.A. **Holsapple**, K.R. Housen, B. Ivanov, C. Johnson, D.G. Korycansky, H.J. Melosh, E.A. Taylor, E.P. Turtle, K. Wünnemann, "The Impact hydrocode Benchmark and Validation Project: Initial Results". *Lunar and Planetary Science XXXVIII paper 2015*, March 2007.
- Holsapple**, K. A., "Response of NEO's to Mitigation Techniques", 2007 Planetary Defense Conference, George Washington University, March, 2007 (Abstract).
- Holsapple**, K. A. "Formation of Binaries by Spin Fission" *Lunar and Planetary Science XXXVIII*, Paper 2440, March 2007.
- Holsapple**, K. A., The spin fission of small asteroids into binaries. 2007 Binary Workshop, Steamboat Springs, Co. LPSC Paper 2440.
- Holsapple**, K. A. and P. Michel, "Tidal Disruptions II: Solid Bodies with all Kinds of Strength" *Lunar and Planetary Science XXXVIII paper 2127*, March 2007
- Michel, P. and **Holsapple**, K.A., "Collisional and tidal disruptions of small solid bodies: Influence of the internal structure and implications", Abstract, Division of Planetary Science Meeting, Pasadena, CA., Oct. 2006.
- Michel, Patrick and K. A. **Holsapple**, "Tidal disturbances of small cohesionless bodies: limit planetary distances and applications" *Proceedings IAU Symposium no. 236*, August, 2006 Prague, Czech Republic, S236, #30.
- Holsapple**, K.A. and Patrick Michel, "Tidal disruptions: A continuum theory for solid bodies" *Icarus*, Volume 183, Issue 2, p. 331-348, 2006.
- Holsapple**, K. A., "Existing methods of asteroid deflections will work: Impacts and Nuclear Bombs" A White Paper prepared for: NASA NEO Detection, Characterization and Threat Mitigation Workshop, June, 2006
- Holsapple**, K.A. and Michel, P. "Collisional and tidal disruptions of small solid bodies: Influence of the internal structure and implications", American Astronomical Society, DPS meeting #38, #65.05. 2006.