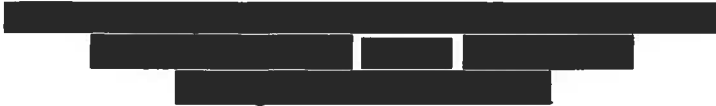


**KRIS ZACNY, PhD**  
 Director, Exploration Technology Group  
 Honeybee Robotics Spacecraft Mechanisms Corporation



Dr. Kris Zacny is Vice President and Director of Exploration Technology Group at Honeybee Robotics. His expertise includes robotic terrestrial and extraterrestrial drilling, excavation, sample handling and processing, geotechnical systems, and sensors. He has been developing numerous technologies from conceptual ideas to fielded prototypes.

In his previous capacity as an engineer in South African mines, Dr. Zacny managed numerous mining projects and production divisions. Dr. Zacny received his PhD in Geotechnical engineering (Topic: Mars Drilling), ME in Petroleum Drilling, and BSc in Mechanical Engineering. He participated in several Arctic, Antarctic, Atacama, Greenland, Mauna Kea, and Mojave drilling expeditions.

Dr Zacny has over 100 publications, including an edited book titled “Drilling in Extreme Environments: Penetration and Sampling on Earth and Other Planets”.

Dr. Zacny has been a Principal Investigator and a Co-Investigator of over 70 NASA and DoD funded projects. He has over 30 NASA New Technology Records (inventions) and three NASA Group Achievement Awards.

**EDUCATION**

**Ph.D., Geotechnical Engineering**, University of California, Berkeley, [REDACTED]

- Thesis: Drilling on Mars

**M.E., Petroleum Engineering**, University of California, Berkeley, [REDACTED]

- Major: Drilling and Materials Science

**B.S., First Class Honors, Mechanical Engineering**, University of Cape Town, South Africa, [REDACTED]

**International Space University**, Summer Session Program, Pomona, CA, [REDACTED]

**NASA 20<sup>th</sup> Planetary Science Summer School**, JPL, Pasadena, CA, [REDACTED]

**SELECTED EDUCATION**

1. Zacny K., R.B. Malla, and W.K. Binienda, "Earth and Space 2012 - Engineering, Construction, and Operations in Challenging Environments", ASCE 2012, ISBN 0-7844-1219-0.
2. Zacny, K., P. Chu, G. Paulsen, M. Hedlund, B. Mellerowicz, S. Indyk, J. Spring, A. Parness, D. Wegel, R. Mueller, D. Levitt , “Asteroids: Anchoring and Sample Acquisition Approaches in Support of Science, Exploration, and In Situ Resource Utilization”, Chapter 11 in Asteroids: Prospective Energy and Material Resources, Badescu (ed), Springer, 2013
3. Zacny, K., “Lunar Drilling, Excavation and Mining in Support of Science, Exploration, Construction, and In Situ Resource Utilization (ISRU)”, Chapter 15 in Moon: Prospective Energy and Material Resources, Badescu (ed), Springer, to be published in 2012
4. Y. Bar-Cohen and K. Zacny [editors], Drilling in Extreme Environments Penetration and Sampling on Earth and Other Planets , John Wiley & Sons, 2009
5. Zacny K., Paulsen G., McKay C.P., Glass B., Davé A., Davila A.F., Marinova M., Mellerowicz B., Heldmann J., Stoker C., Cabrol N., Hedlund M., and Craft J. Reaching 1 m Deep on Mars: The Icebreaker Drill, Astrobiology. December 2013, 13(12): 1166-1198. doi:10.1089/ast.2013.1038.
6. K. Zacny and G. Cooper, Considerations, Constraints and Strategies for Drilling on Mars, Planetary and Space Science Journal. V. 54, Issue No. 4 pp. 345-356, 2006, doi:10.1016/j.pss.2005.12.003