

Erik Davies

UC Davis, Earth and Planetary Sciences
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Research Interests: Thermodynamics and dynamics of impact events during planet formation. Equation of state development using shock physics principles.

Education

University of California, Davis: 2014 – present

Graduate Student in the Department of Earth and Planetary Sciences

University of Redlands, CA: 2012 – 2014

BS (magna cum laude) in Physics, Transfer Institution

University of California, Riverside: 2010 – 2011

Major in Physics

Research Experience

University of California, Davis: 2014 – present

I am currently working with Dr. Sarah Stewart on problems in large and giant impactors with an emphasis on planet formation. My research focuses on understanding the physical processes that dominate planet formation. My work is a combination of using lasers, gas guns, and pulsed power platforms to experimentally determine thermodynamic properties of materials, Equation of State development, and large scale modeling in the giant impact regime of planet formation.

University of Redlands: 2012-2014

I was awarded two undergraduate summer research grants at the University of Redlands to establish a permanent university telescope and complete a project of my choosing. I used this telescope to observe extra-solar planet transits. I constructed data analysis programs for all collected images and a program to perform differential photometry. I developed this work into my capstone project.

Awards

NASA Earth and Space Science Fellowship (NESSF) Program: Awarded in 2016.

Conference Contributions and Publications

Davies, E. J., D. K. Spaulding, and S. T. Stewart (2019), Construction and Calibration of a Streaked Optical Spectrometer for Shock Temperature, in *AIP Conference Proceedings, SCCM19*, submitted.

Davies, E. J., P. J. Carter, S. Root, D. K. Spaulding, R. G. Kraus, S. T. Stewart, and S. B. Jacobsen (2019). Silicate Melting and Vaporization in Rocky Planet Formation, *JGR-Planets*, submitted.

Stewart, S. T., E. J. Davies, M. Duncan, S. Lock, S. Root, J. Townsend, R. Kraus, R. Caracas, and S. Jacobsen (2019), The shock physics of giant impacts: Key requirements for the equations of state, in *AIP Conference Proceedings, SCCM19*, in revision.

Davies, E. J., P. J. Carter, M. S. Duncan, S. Root, D. K. Spaulding, R. G. Kraus, S. T. Stewart, and S. B. Jacobsen (2019), Impact Generated Vapor Plumes after Dispersal of the Solar Nebula. In *Lunar and Planetary Science Conference*, vol. 50, Abs. 1256.

Davies, E. J., S. Root, P. J. Carter, M. S. Duncan, D. K. Spaulding, R. G. Kraus, S. T. Stewart, and S. B. Jacobsen (2019), Impact Vaporization Criteria during Planet Formation, in *Lunar and Planetary Science Conference*, vol. 50, Abs. 1257.

Root, S., J. P. Townsend, E. J. Davies, R. W. Lemke, D. E. Bliss, D. E. Fratanduono, R. G. Kraus, M. Millot, D. K. Spaulding, L. Shulenburg, and S. T. Stewart (2018). The principal Hugoniot of forsterite to 950 GPa. *Geophysical Research Letters*, 45(9), 3865-3872.

Other Skills

Multiple programming and scripting languages as follows: C++, IDL, Python, and MATLAB.