

Investigation of Plasma Flow Characteristics in a Magneto-Plasma Rocket

David Garrison
School of Science and
Computer Engineering

John V. Shebalin
NASA-JSC



David Garrison



John V. Shebalin

Abstract—Scientists at NASA-JSC have been engaged in the development of a new space engine concept, designed to propel space vehicles by ionizing and heating neutral gas to high temperatures and then guiding them out of a magnetic nozzle to produce thrust. Research and production will see the development of the VASIMIR (Variable Specific Impulse Magneto-Plasma Rocket). Much like a chemical rocket engine, this engine will transport vehicles faster and allow space travel at greater distances.

In 2004, VASIMIR leadership received applications and interviewed potential applicants for a postdoctoral position on the team. A candidate has been selected and has received a letter inviting him to join NASA scientists in this project. He was expected to have begun his research with NASA scientists the first week of April 2005.

Web site: <<http://www.isso.uh.edu>>.



Franklin R. Chang-Díaz



Publications

Shebalin, J. V. "Stormer Regions for Axisymmetric Magnetic Multipole Fields," *Physics of Plasmas* 11.7 (2004): 3472-83.



VASIMIR

Projects involve NASA principal investigators with UH and UHCL faculty and senior scientists who integrate graduate and undergraduate students into project teams conducting state-of-the-art research. This research team is developing the VASIMIR, the Variable Specific Impulse Magneto-Plasma Rocket.

Opposite page:

David Garrison, Chair, Dept. of Physics, UHCL; John V. Shebalin, Co-PI, NASA-JSC; *(middle)* Franklin R. Chang-Diaz, Astronaut and Director of the Advanced Space Propulsion Laboratory (ASPL) at NASA-JSC and Principal Investigator in the VX-10 Experiment; *(bottom)* Laurie Y. Carillo, P.E., B.S., materials engineering, Rice U, with an M.S. in aerospace engineering, University of Colorado, now a Ph.D. student in mechanical engineering at Rice University.

(upper l.) Jacqueline Bastnagel, administrator.; *(upper r.)* Andrew Ilin, Senior Scientist, Numerical Mathematician, Muniz Engineering, Inc.; *(middle)* Genta Sato, Research Fellow, Innovation Plaza Miyagi, Japan Science and Technology Agency; *(bottom)* Chris Deline, graduate student in electrical engineering, the University of Michigan

