

Chemical Abundances in the Ejecta of Eta Carinae

Principal Investigator: Dr. Theodore R. Gull

Institution: NASA Goddard Space Flight Center

Electronic Mail: Theodore.R.Gull@nasa.gov

Scientific Category: ISM AND CIRCUMSTELLAR MATTER

Scientific Keywords: MASSIVE STARS, METAL ABSORPTION SYSTEMS, CHEMICAL
ABUNDANCES, WINDS/OUTFLOWS/MASS-LOSS

Total Budget Amount: \$60,000

Abstract

The massive (>100 solar masses) stellar system, Eta Carinae, is immersed in its own CNO-processed material thrown out over the past 170 years. These nitrogen-rich, carbon- and oxygen-poor ejecta have enriched metal abundances and peculiar dust properties, most likely due to chemical processes and photo-excitation, not pre-ejection nuclear processes. The outermost ejecta, the Homunculus, is a well-defined warm, dusty neutral shell including at least ten solar masses of material. We propose to expand the STIS narrow line absorption studies to include VLT/UVES measures and obtain relative abundances of metals, some of which are not seen in the ISM due to dust formation. We thereby will provide information to dust experts on the differences of dust around Eta Carinae compared to normal ISM dust.

Investigators:

	Investigator	Institution	Country
PI	Dr. Theodore R. Gull	NASA Goddard Space Flight Center	USA/MD
CoI	Dr. Krister Nielsen	Catholic University of America	USA/DC
CoI*	Dr. Sveneric Johansson	Lund University	Sweden
CoI*	Dr. Henrik Hartman	Lund University	Sweden
CoI	Ms. Gladys Vieira Kober	Science Systems and Applications, Inc.	USA/MD
CoI*	Dr. Kerstin Weis	Universitat Bochum, Astronomisches Institut	Germany
CoI*	Dr. Otmar Stahl	Landessternwarte Heidelberg	Germany
CoI*	Dr. Dominik J. Bomans	Universitat Bochum, Astronomisches Institut	Germany
CoI	Dr. Ekaterina Verner	University of the District of Columbia	
CoI	Dr. Frederick C. Bruhweiler	Catholic University of America	USA/DC

Number of investigators: 10

* ESA investigators: 5