

## Short description written by each ESR and ER

Project acronym: **ELSA**  
 Project ID (6 digits): **033481**  
 Project Participant: **Observatoire de Paris-Meudon**

You			Your stay in the network				
NAME, first name	Nationality	Previous place of work/education	Start date	Duration (months)	Category ESR/ER	Place	Country
WEILER, Michael	german	DLR Institute for Planetary Research, Berlin, Germany	01.07.07	24	ER	Observatoire de Paris-Meudon	France

**Scientific Background:** I studied physics at the universities of Bonn and Berlin (Germany) and graduated at the Technical University of Berlin with a diploma thesis in comet science (*The dust activity of comet Hale-Bopp*). Afterwards I obtained a PhD with a work in comet science (*The gas and dust activity of recent comets*), prepared at the DLR Institute for Planetary Research, Berlin (Germany). The PhD was given by the Technical University Berlin in December 2006. From July 2007 on I was employed as an Experienced Researcher at the ELSA network node Meudon.

**Responsibilities within ELSA:** Within the ELSA network I am working on the implementation of models for Charge Transfer Inefficiency (CTI) in the Gaia pixel-level data simulator. This work includes the adaption of existing models to the specific properties of the Gaia detectors and the existing simulator, the validation of the model, and the support of users of CTI simulations. Beside the work on simulations for Gaia, I had the opportunity to work further on comet science, with a focus on the use of Gaia observations.

**Training:** Within the frame of this work I had the opportunity to acquire programming skills in Java, and to become familiar with programming in a large collaboration (SVN, bug-tracking). Furthermore, I learned about the operational principles of CCD detectors down to sub-pixel level, and about interactions of particle irradiation with semi-conductors (energy loss, defect production). I had opportunity to participate in a number of meetings and workshops on CTI, CCD simulation, and PSF/LSF simulation. The work with the Gaia instrument simulator allowed me to gain insights in various aspects of the Gaia mission (CCD operations, observations of extended and moving objects, astrometry and spectroscopy). With respect to comet science, I attended the Alpbach Summer School 2008 on Sample Return Missions from Moon, asteroids, and comets. Furthermore, in interaction with the ELSA node Helsinki and the IMCCE (Paris), I learned about Solar System science with Gaia (light-curve analysis, non-gravitational forces), and about ground-based Solar System science with Gaia (stellar occultations).

**Interaction with other nodes:** Within the work on CTI, I had close interactions with other ELSA nodes: Cambridge (analysis of experimental CTI data), Leiden (Monte-Carlo simulations of CTI effects, ESR T. Prod'homme), Lund (CTI modeling for AGIS, ESR B. Holl).

**Achievements:** CTI models were implemented in the existing Gaia data simulator. This allows us to simulate the effects of radiation damage in various observational situations of interest. A publication of a systematic study of such effects using the simulator is intended for Spring 2009. A physical model for comets was developed and can be used together with the Gaia instrument simulator. A systematic study of comet observations is currently in progress.