



JENS JASCHE

From Sweden to France



Project: **The PDMC method**

Research topic: **Astrophysics**

Swedish Institution: **Stockholm University**

French Institution: **ENS and Institut d'Astrophysique de Paris**

Dates of mobility: **23/09/2019 to 27/09/2019**

Program: **SFVE-A (ex FRÖ)**



PRESENTATION

[Jens Jasche](#) is Associate Professor in Statistics and Machine Learning at the [Department of Physics](#) at [Stockholm University](#). He is the founder of the [Aquila Consortium](#), an international collaboration of Researchers in Astrophysics. Previously, he was a Research Fellow at the [Technische Universität](#) of Munich and a Feodor Lynen Research Fellow at the [Institut d'Astrophysique](#) of Paris. He graduated 2010 with a PhD degree in Astrophysics with a thesis intitled "Bayesian Methods for Analyzing the Large Scale Structure of the Universe" at [Ludwig-Maximilians Universität](#) in Munich. Jens Jasche is interested in a broad spectrum of topics in astrophysics and cosmology, such as the structure and galaxy formation and the dark matter and energy phenomenology.

ACTIVITIES IN FRANCE

Jens Jasche visited the Institut d'Astrophysique de Paris (IAP) and the [École Normale Supérieure](#) (ENS) in order to establish a new interdisciplinary research collaboration between [Manon Michel](#), from the ENS, [Guilhem Lavaux](#), from the IAP, and him. The objective is thus to investigate the stochastic algorithms (PDMC: Piecewise-Deterministic Monte Carlo) for non-linear analyses of the spatial distribution of cosmic matter probed by next-generation cosmological surveys. The goal is to advance our knowledge about the Universe thanks to the implementation of the PDMC method into the BORG algorithm.

This interdisciplinary project exploiting applied mathematics to data analysis tasks in cosmology was a success and led in particular to new publications in scientific journals. Moreover, during his stay, Jens Jasche had the opportunity to discuss with many other researchers, including with [Benjamin Wandelt](#) from the IAP.