

Prof. Dr. Eric Sonnendrücker



Current positions

Director and Division Head “Numerical Methods in Plasma Physics”, MPI for Plasma Physics, Garching
Professor at Mathematics Department, Technical University of Munich

Previous positions

Professor in Mathematics, University of Strasbourg
Research Associate at CNRS, University of Nancy

Scientific degrees

Master in Mathematics, Ecole Normale Supérieure de Cachan
PhD in Applied Mathematics, Ecole Normale Supérieure de Cachan (1995)
Habilitation, University of Nancy (2000)

Recent research topics

Geometric and structure preserving algorithms, numerical methods for kinetic equations, numerical methods for Maxwell and MHD equations, asymptotic models

Publications (5 most important since 2007)

- **M. Kraus, K. Kormann, P. J. Morrison, E. Sonnendrücker**, GEMPIC: Geometric electromagnetic particle-in-cell methods, *J. Plasma Phys.* 83, 905830401 (2017) [doi:10.1017/S002237781700040X](https://doi.org/10.1017/S002237781700040X)
- M. Campos Pinto, **E. Sonnendrücker**, Gauss-compatible Galerkin schemes for time-dependent Maxwell equations, *Math. Comput.* 85, 2651 (2016) [doi:10.1090/mcom/3079](https://doi.org/10.1090/mcom/3079)
- **A. Bottino, E. Sonnendrücker**, Monte Carlo particle-in-cell methods for the simulation of the Vlasov-Maxwell gyrokinetic equations, *J. Plasma Phys.* 81, 435810501 (2015) [doi:10.1017/S0022377815000574](https://doi.org/10.1017/S0022377815000574)
- N. Crouseilles, A. Ratnani, **E. Sonnendrücker**, An Isogeometric Analysis approach for the study of the gyrokinetic quasi-neutrality equation, *J. Comput. Phys.* 231, 373 (2012) [doi:10.1016/j.jcp.2011.09.004](https://doi.org/10.1016/j.jcp.2011.09.004)
- N. Crouseilles, M. Mehrenberger, **E. Sonnendrücker**, Conservative semi-Lagrangian schemes for the Vlasov equation, *J. Comput. Phys.* 229, 1927 (2010) [doi:10.1016/j.jcp.2009.11.007](https://doi.org/10.1016/j.jcp.2009.11.007)