

Dr. Omar Maj



Current positions

Staff Researcher in the Division “Numerical Methods in Plasma Physics”, MPI for Plasma Physics, Garching (since 2015)

Group Leader “Geometric and Structure Preserving Methods”

Previous positions

Post-doc positions, Physics Department, University of Pavia (2004-2007)

Research Grant of the Foundation Blanceflor Boncompagni-Ludovisi (2008)

Post-doc positions, MPI for Solar System Research, Göttingen and MPI for Plasma Physics, Garching (2009-2015)

Scientific degree

PhD in Physics, University of Milan (2003).

Recent research topics

Waves in inhomogeneous dispersive media: numerical methods and semiclassical asymptotics, structure-preserving discretization of partial differential equations, Hamiltonian systems and their discretization

Publications (5 most important)

- **C. Bressan, M. Kraus, P. J. Morrison, O. Maj**, Relaxation to magnetohydrodynamics equilibria via collision bracket, *J. Phys. Conf. Ser.* 1125, 012002 (2018) [doi:10.1088/1742-6596/1125/1/012002](https://doi.org/10.1088/1742-6596/1125/1/012002)
- **H. Weber, O. Maj, E. Poli**, Scattering of diffracting beams of electron cyclotron waves by random density fluctuations in inhomogeneous plasmas, *EPJ Web Conf.* 87 (2015) [doi:10.1051/epjconf/20158701002](https://doi.org/10.1051/epjconf/20158701002)
- **R. Bilato, O. Maj, M. Brambilla**, An algorithm for the fast Hilbert transform of real functions, *Adv. Comput. Math.* 40, 1159 (2014) [doi:10.1007/s10444-014-9345-4](https://doi.org/10.1007/s10444-014-9345-4)
- **O. Maj, A. Mariani, E. Poli, D. Farina**, The wave energy flux of high frequency diffracting beams in complex geometrical optics, *Phys. Plasmas* 20, 042122 (2013) [doi:10.1063/1.4802935](https://doi.org/10.1063/1.4802935)
- **O. Maj, G. V. Pereverzev, E. Poli**, Validation of the paraxial beam-tracing method in critical cases, *Phys. Plasmas* 16, 062105 (2009) [doi:10.1063/1.3155449](https://doi.org/10.1063/1.3155449)