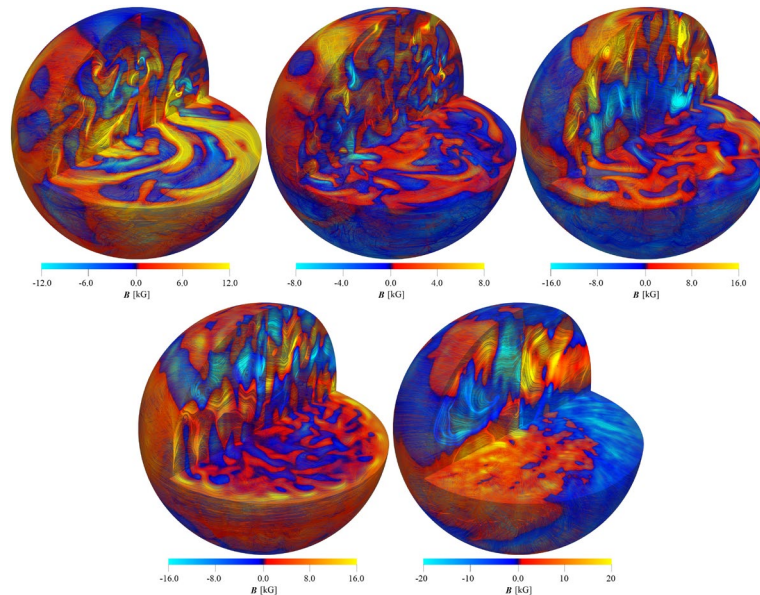




PHYSIKALISCHES KOLLOQUIUM

AM 23. OKTOBER 2023 UM 17 UHR C.T.
IM GROßEN HÖRSAAL



STELLAR MAGNETISM IN NATURA AND IN SILICO

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The Sun exhibits magnetic activity in various spatial and temporal scales. For a dynamo theorist the arguably most interesting phenomena is the on the average 22-year magnetic cycle of the Sun. Observations accumulated over several decades show that other low mass stars like the Sun also exhibit magnetic activity and cycles, with the level of magnetic activity being closely related to the age of the stars. I summarize the main findings from observations and how the Sun fits into this overall picture.

Theoretical modeling of stellar magnetism relies heavily on numerical modeling. However, the physical conditions in such models are also far removed from real stars and making contact with observations has to be made with care. Nevertheless, 3D MHD simulations of convection and dynamos capture many characteristics of solar and stellar observations and they are the most promising way to understand the genesis of magnetism in stars. Recent simulation results of solar-like and fully convective stars are discussed, emphasizing the successes and outstanding challenges.

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