Physikalisches Institut
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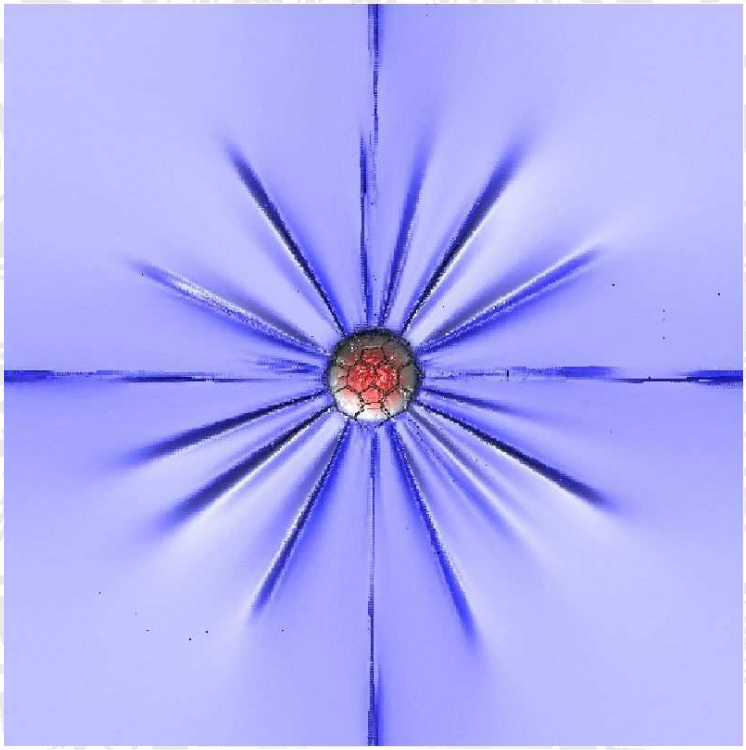
Albert-Ludwigs-Universität Freiburg

PHYSIKALISCHES KOLLOQUIUM

AM 30. JANUAR 2012 UM 17 UHR C.T.

IM GROßEN HÖRSAAL



CAN COMPUTER SIMULATIONS RESOLVE THE CONTROVERSY ON THE ORIGIN OF SOLID FRICTION?

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Solid friction tends to change with velocity rather slowly, i.e., significantly less than linearly with velocity. Prandtl recognized more than 80 years ago that the origin of this behavior must be due to microscopic hystereses or instabilities. However, the precise nature of the instabilities for specific systems is still not always clear. In my talk I will review some recent advances made in identifying relevant mechanisms with the help of computer simulations. The simulated processes range from chemical bond breaking to plastic deformation in boundary lubricants and the friction of wrinkles.