

EUROPEAN X-RAY FREE ELECTRON LASER: STATUS AND APPLICATIONS

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In my presentation a concise overview of the present status of the research with free-electron-lasers (FELs) will be given. I will explain the operating principle of FELs and present their potential applications to imaging of single particles and time-resolved studies of ultrafast dynamics in atomic,

condensed matter, plasma physics and in materials science in the context of experiments planned at the European X-ray FEL facility. Finally, I will discuss the basics on the interaction of FEL radiation with matter that has implications for all FEL applications.