

### Plenary Talk

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**How to use dust particles for diagnostics in process plasmas?** — ●HOLGER KERSTEN — Institute of Experimental and Applied Physics, University of Kiel, D-24098 Kiel, Germany

Complex (dusty) plasmas, which can form plasma or Coulomb crystals are at recent a topical research subject in plasma physics. The complexity of dusty plasmas results in complicated interactions at different scales in energy, space, time and mass, which is a subject of investigation in the SFB-TR 24.

Experimental and theoretical studies initiated the idea of using externally injected small particles, which are negatively charged and affected by several forces in plasmas, as micro-probes. From the behavior

of the particles in the surrounding plasma local electric fields can be determined (particles as electrostatic probes) [1,2]. Moreover, momentum fluxes in energetic ion beams (particles as force probes) [3] as well as energy fluxes towards the particles (particles as thermal probes) [4] have been studied.

[1] Schubert,G., Basner,R., Kersten,H., Fehske,H., Eur. Phys. J. D 63(2011), 465.

[2] Beckers,J., Ockenga,T., Wolter,M., Stoffels,W.W., vanDijk,J., Kersten,H., Kroesen,G.M.W., Phys. Rev. Lett. 106(2011), 115002.

[3] Maurer,H., Schneider,V., Wolter,M., Basner,R. Trottenberg,T., Kersten,H., Contrib. Plasma Phys. 51(2011), 218.

[4] Maurer, H., Kersten, H., J. Phys. D: Appl. Phys. 44(2011), 174029.