

## **User facilities for Positron Annihilation Spectroscopy (PAS) at Helmholtz-Zentrum Dresden-Rossendorf (HZDR)**

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Three user dedicated facilities of PAS are built at the Institute of Radiation Physics of HZDR. The first equipment, a mono-energetic slow positron beam with  $^{22}\text{Na}$  as positron source, is mainly used for depth dependent Doppler broadening spectroscopy of defects in solids. The other two facilities are driven in connection with a superconducting electron linear accelerator ELBE (ELECTRON LINAC for beams with high BRILLIANCE and low EMITTANCE), where the positrons are created by bremsstrahlung and pair production: the  $\gamma$ -induced positron annihilation spectroscopy (GiPS) and the pulsed mono-energetic positron beam (MePS).

After an explanation of the fundamentals of PAS, the talk will present an introduction in the set-up and functionality of these three facilities. On the basis of concrete examples the usefulness of the facilities for the investigation of open-volume defects of small size and low concentration in solids will be demonstrated.

At the end of the presentation, a short outline of the procedure for application of PAS beam time will be given.