

**Einladung zum**  
**IHM-Sonder-Kolloquium**  
**Dienstag, den 15. November 2011, 09.15 Uhr,**  
**Kolloquiumsraum, Geb. 421, Raum 413**



(Hinweis: Die Aufsichtsbehörde verlangt beim Betreten des KIT, Campus Nord, die Vorlage eines gültigen Personalausweises oder Reisepasses)

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**Some broadbanding aspects in slow-wave and fast-wave travelling-wave tubes**

**Abstract:**

The talk will encompass (a) the slow-wave tube: (i) conventional TWT (Cerenkov-based) and (ii) SWCA (Weibel-based) and (b) the fast-wave tube: (i) gyro-TWT (CRM-based) and (ii) CARM (CRM- and Weibel-based). The analyses will cover (i) the space-charge and the cyclotron-mode dispersion relations; (ii) the excitation of the slow or the fast waveguide mode in (a) and (b); and (iii) the magnetic field required for the gyro-TWT. The techniques of broadbanding a conventional TWT: (i) anisotropic vane loading of the envelope, (ii) inhomogeneous helix-support loading, (iii) use of multiple dispersion; and those of broadbanding a gyro-TWT: (i) dielectric wall loading, (ii) metal disc loading, (iii) waveguide cross section tapering, etc. will be discussed. With respect to SWCA and CARM, both doing away with complex structures, more extensive research is solicited.