

**Plenary Talk**

PV II Mon 9:45 HSZ/AUDI

**Thin film technology for fabrication of nonlinear active optical components and its future application in photonic circuits**

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The development of optical components is currently at a point where traditional concepts need to be extended. In particular, applications in the field of communications as well as highly innovative approaches for photonic quantum computing and quantum communications require not only high optical performance but also massive parallelization. Such concepts can only be sensibly implemented if the integration density of the optical circuits is massively increased. Concepts such

as those used in telecommunications applications also appear to be target-oriented for applications in quantum technology. In addition to the "traditional" passive components, which are just as indispensable here as in classical signal processing, there is an increasing demand for ultra-fast active components. Such components must integrate seamlessly into the concepts. The mass market suitability of current solutions is a particular challenge that should not be underestimated. For this reason, various institutes are working on such components in particular. The presentation gives an overview of the components that are already established and new concepts especially in combination with interference films like FTMs for the frequency tripling, and Kerr band switches for fast optical switches, as well as for electro-optical components using Pockels effect.