



Venerdì **22 Settembre** alle ore **12:30** presso l'aula G

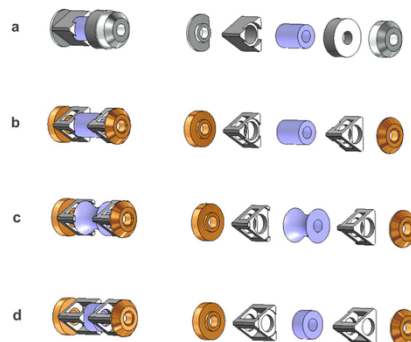
## il **Prof. W. M. Christopher Kay**

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terrà il seminario dal titolo:

### **From EPR Resonators to Masers: A Dielectric Journey**

*Over the last decade, we have been working to build room-temperature masers. An essential component of these devices is the microwave resonator. Hence, part of our focus has been the design and optimization of dielectric resonators with a large Purcell factor. This is obtained by having a high  $Q$  factor and a small volume, which is precisely what is required for high sensitivity EPR spectroscopy. Our work resulted in both pulsed masers using the photoexcited triplet state of pentacene doped into a single crystal of *p*-terphenyl operating at 1.45 GHz [1,2] and continuous-wave masers using NV- centers in diamond operating at 9-10 GHz [3,4], and optimized versions of the Bruker MD5 dielectric resonator for transient and pulsed EPR spectroscopy [5]. The figure depicts: (a) the geometry of the original Bruker dielectric resonator; (b) a symmetric version; (c) a version by using a specially shaped sapphire ring that gives a more symmetric microwave field for longer samples; (d) a version with a shorter dielectric ring that gives a much higher, but less homogeneous microwave field for short samples or paramagnetic states produced by laser excitation. The sapphire ring is depicted in pale blue, the Teflon supports in white and the metal end pieces in silver or copper.*



*La presenza della S. V. sarà molto gradita*

Marilena Di Valentin  
Donatella Carbonera

**Il Direttore del Dipartimento**  
Michele Maggini