Terahertz Radiation Emission from Topological Materials

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Abstract: Quantum Topological Materials present peculiar electrodynamic properties characterized by a strong optical non-linearity in terahertz range. Here, we will briefly describe the physics of Quantum Topological Materials and their use as innovative quantum terahertz emitters.

Quantum materials (see Fig.1), like High-Tc superconductors, strongly-correlated metallic oxides, graphene, 2D systems and topological materials are at the forefront in material science, showing several applications in quantum technologies [1,2,3]. Most of these systems are characterized by low energy excitations which determine their quantum behavior. In particular, Quantum Topological Materials present very peculiar electrodynamic properties characterized by a strong optical non-linearity [4,5]. In this talk, we will briefly describe the physics of Quantum Topological Materials and their use as innovative quantum terahertz emitters [6,7].

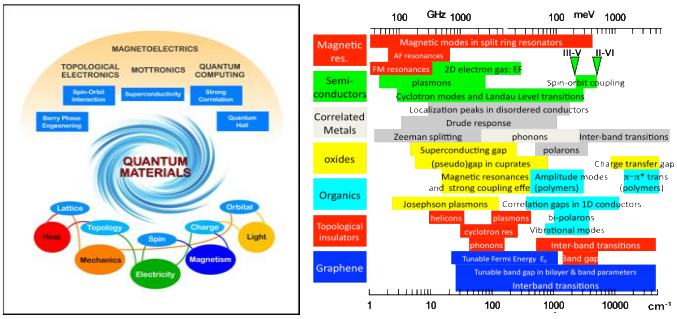

Fig. 1 Quantum Materials applications and their corresponding fundamental excitations.

References

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