ABSTRACT: In this talk we will provide an overview on the properties of the Friedrichs-Lee Hamiltonian. After showing that the model can describe the single-excitation interaction between a structured boson field and a family of two-level systems, we will discuss its extension to a larger class of couplings via a domain change; this procedure can be interpreted as an operator-theoretical renormalization. We will finally characterize its spectral properties by studying its spectral decomposition; in particular, we will briefly discuss the insurgence of bound states in the continuum (BICs) for a Friedrichs-Lee model whose inner Hamiltonian has an absolutely continuous spectrum. To access the online stream use the link: https://eu.bbcollab.com/guest/e0428ec52d77425b98249a19864b97aa