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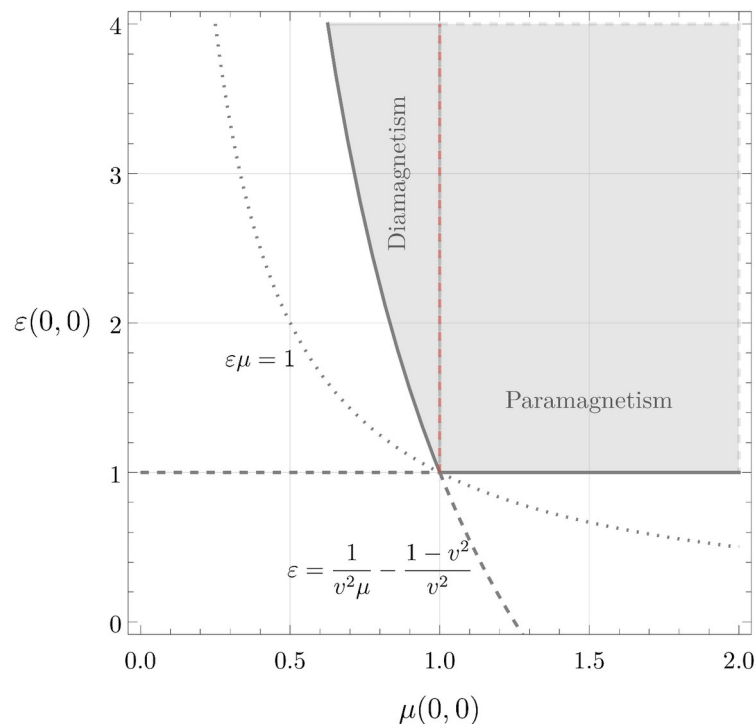
ICTP Trieste

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ore 14:30

Lungotevere Dante 376
Aula M2

Positivity Constraints for condensed matter and cosmology

The coefficients of the operators of an effective field theory (EFT) are constrained to satisfy certain inequalities, under the (mild) assumption that the UV completion satisfies general requirements of causality and unitarity. I discuss the extension of these ideas to theories where the Lorentz symmetry is spontaneously broken, as it happens in cosmology and condensed matter physics. I explain why the use of the S-Matrix run into immediate problems. Constraints can be derived using dispersive arguments for 2-point functions, whose properties are much richer than in the Lorentz invariant case. As a concrete application I will discuss general bounds on the electromagnetic properties of media.



[figure from [2405.09614](#)]