

# SEMPARIS – Séminaires en région parisienne

<http://string.lpthe.jussieu.fr/semparis/>

## Séminaire du Laboratoire de Physique Théorique de la Matière Condensée

**Lundi 16 Novembre 2020, 10 :45**

LPTMC, On-line zoom seminar( <https://zoom.us/j/93520463813?pwd=YmYrRThkNE1pS0J0bG1>

ID de réunion : 935 2046 3813 Code secret : 096019 )

Domaines : cond-mat.mes-hall

Titre : *Boundary Modes from Impurity-induced States*

Orateur : **Vardan Kaladzhyan ( University of Basel )**

Résumé : *We provide a new and exact formalism to describe the formation of end, edge or surface states through the evolution of impurity-induced states. We propose a general algorithm that consists of finding the impurity states via the T-matrix formalism and showing that they morph into boundary modes when the impurity potential goes to infinity. We apply this technique to obtain both topological and trivial boundary modes in various models. Furthermore, we demonstrate that the technique provides a non-recursive analytical way of computing boundary Green's functions. To provide an example, we use the latter to calculate exactly quasiparticle interference patterns on the surface of Weyl semimetals, and we compare our findings with the previously obtained results based on the joint density of states approach, demonstrating the experimental relevance and importance of our method.*

---