NEB - 21
Corfu September 1-4, 2025

Contribution ID: **44**   Type: **talk**

Fixing the dynamical evolution of self-interacting vector fields

Thursday 4 September 2025 15:40 (20 minutes)

I will discuss the Cauchy problem of self-interacting massive vector fields, and explain why they often face instabilities and apparent pathologies. After showing that these issues are due to the breakdown of the well-posedness of the corresponding initial-value problem, I will characterize the well-posedness breakdowns and explicity show that they can be avoided by fixing the equations in a suitable way. As an application, I will numerically show that no Tricomi-type breakdown takes place in the quadratic case, and investigate initial configurations which lead to gravitational collapse and the formation of black holes.

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Session Classification: Parallel Session B