# Geometrical destabilization, sidetracked inflation and swampland conjectures

In this talk, we review several recent works exploring the theoretical and observational consequences of the geometrical destabilization of inflation, a generic instability of high-energy physics embeddings of inflation. We argue that this instability drives the system away from its original path in field space into a new inflationary attractor characterized by a strongly non-geodesic motion. We study in details the observational consequences of this so-called sidetracked phase, including non-Gaussianities. We show that cosmological fluctuations exhibit varied behaviours depending on the potential and the field space geometry, and that they can be captured by single-field effective theories with either a modified dispersion relation, a reduced speed of sound, or an imaginary one. Sidetracked inflation allows to inflate on potentials that would be too steep to support slow-roll inflation, and we discuss the relationship between this general class of models and swampland conjectures.

References:
1) Geometrical Destabilization of Inflation, https://arxiv.org/abs/1510.01281
2) Primordial fluctuations and non-Gaussianities in sidetracked inflation, https://arxiv.org/abs/1804.11279
3) Flattened non-Gaussianities from the effective field theory of inflation with imaginary speed of sound, https://arxiv.org/abs/1805.12563
4) On backreaction effects in geometrical destabilisation of inflation, https://arxiv.org/abs/1901.10468
5) Hyper non-Gaussianities in inflation with strongly non-geodesic motion, https://arxiv.org/abs/1902.03221