# ANALYSIS MEETS GEOMETRY

## Some linear foliations of complex projective spaces
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**Abstract.** I will describe two natural families of foliations of complex projective spaces and explain how good analogues of Marstrand's classical projection Theorem can be formulated and proved with respect to these foliations.

## Restricted projections to lines and planes in $\mathbb{R}^3$
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**Abstract.** What is the relation between the size of a set and its projections to lines and planes? Marstrand's theorem states that the Hausdorff dimension is preserved under almost every projection with respect to the surface measure on the unit sphere in $\mathbb{R}^3$. In this talk I will discuss some recent results regarding projections to lines spanned by vectors lying in the intersection between the unit sphere and a plane not passing through the origin. Since this intersection has surface measure zero, Marstrand's result does not give us any information. We show that the dimension is preserved almost surely with respect to the length measure and present some partial results for projections onto planes.

*Joint work with A. Käenmäki and T. Orponen.*

## Nonlinear Stability for the modified Mullins-Sekerka flow
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**Abstract.** It has been recently shown that strictly stable critical configurations for the sharp interface Ohta-Kawasaki energy are in fact isolated local minimizers with respect to small $L^1$-perturbations. After reviewing such results, we study the corresponding evolution problem and we show that such strictly stable configurations are exponentially stable for the $H^{1/2}$-gradient flow of the Ohta-Kawasaki energy, also known as the nonlocal Mullins-Sekerka flow.

*Joint work with E. Acerbi, N. Fusco and M. Morini.*