## VIRTUAL EAST-WEST SCV SEMINAR

June 1, 2021

Francine MEYLAN
University of Fribourg

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### Infinitesimal CR automorphisms of strictly positive weight for polynomial models and their consequences

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Let $M_H$ be the hypersurface given by

$$M_H = \{(z,w) \in \mathbb{C}^{n+1} \mid \Im w = < z, z >\},$$

where $< z, z >$ is a nondegenerate Hermitian form. We recall the following classical statement contained in the work of Chern and Moser in 1974:

**Theorem.** Let $M \subset \mathbb{C}^{n+1}$ be a real hypersurface that is a real-analytic perturbation of $M_H$, and let $F$ and $G$ be two germs of biholomorphic maps preserving $M$. Then, if $F$ and $G$ have the same 2-jets at $p$, they coincide.

In this talk, I will discuss the following questions:

(1) What happens to this theorem if we replace the Hermitian form by a real (well chosen) homogeneous polynomial $P$, that is, if one considers perturbations of the model hypersurface given by

$$M_H = \{(z,w) \in \mathbb{C}^{n+1} \mid \Im w = P(z, \bar{z})\}?$$

(2) What happens to this theorem if we replace the hypersurface $M_H$ by the submanifold of codimension $d$ given by

$$M_H = \{(z,w) \in \mathbb{C}^{n+d} \mid \Im w = < z, z >\},$$

where $< z, z >$ is a $d-$dimensional nondegenerate Hermitian form?

This talk involves work with Martin Kolar and Dmitri Zaitsev for the first question, with Florian Bertrand, Lea Blanc-Centi and Jan Gregorovic for the second question.

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