1108-53-119 **Joeri Van der Veken*** (joeri.vanderveken@wis.kuleuven.be), KU Leuven, Department of Mathematics, Celestijnenlaan 200B - Box 2400, 3001 Leuven, Belgium. *Curvature inequalities for Lagrangian submanifolds.*

This talk is based on joint work with Bang-Yen Chen, Franki Dillen and Luc Vrancken on curvature inequalities for Lagrangian submanifolds of complex space forms. In particular, if M^n is an n-dimensional Lagrangian submanifold of a complex space form $\tilde{M}^n(c)$ of constant holomorphic sectional curvature c, then one can prove pointwise inequalities of the following type:

$$\delta(n_1, \ldots, n_k) \leq a(n, k, n_1, \ldots, n_k)\|H\|^2 + b(n, k, n_1, \ldots, n_k)c.$$

Here, H is the mean curvature vector and $\delta(n_1, \ldots, n_k)$ is any delta-curvature of M^n. Recall that on an n-dimensional Riemannian manifold, one can define a delta-curvature for any k-tuple $(n_1, \ldots, n_k)$ of integers, satisfying $2 \leq n_1 \leq \ldots \leq n_k \leq n-1$ and $n_1 + \ldots + n_k \leq n$. The strength of the inequalities lies in the fact that they give information about intrinsic invariants (the delta-curvatures) by knowing an extrinsic invariant (the mean curvature) and vice versa.

In this talk, I will give an overview of the search for the optimal constants a and b in the above inequality. Franki Dillen was involved in all major steps, from the first proposal in 1994 until our final solution in 2013. (Received January 06, 2015)