Theo Buehler: Geometric Milnor-Wood Inequalities (after Besson-Courtois-Gallot)

In their recent preprint “Inégalités de Milnor-Wood géométriques”, G. Besson, G. Courtois and S. Gallot proved the following higher-dimensional analogue of the classical Milnor-Wood inequality for flat bundles of higher genus surfaces:

Let (Y, g) *be a closed* n*-dimensional Riemannian manifold and let* $(\widetilde{X}, g_0)$ *be a simply connected* n*-dimensional symmetric space, which is a finite product of non-compact rank one symmetric spaces of dimension* ≥ 3*. Let* $\varrho : \pi_1(Y) \to \mathrm{Isom}\,(\widetilde{X})$ *be a representation. The following inequality holds for the volume of the representation and the entropies:*

$$\mathrm{vol}\,(\varrho)\,\mathrm{Ent}\,(\widetilde{X}, g_0)^n \leq \mathrm{vol}\,(Y)\,\mathrm{Ent}\,(Y, g)^n.$$

Moreover, if $\mathrm{Ent}\,(Y, g) > 0$*, then equality holds if and only if the representation* ϱ *is injective with discrete image and* $\widetilde{X}/\varrho(\pi_1(Y))$ *is a compact manifold homothetic to* (Y, g)*.*

This result generalizes the authors' entropy rigidity results and implies in particular Mostow's rigidity theorem. The goal of this talk is to explain the main ideas of the proof of the result, which relies on the authors' celebrated *barycenter method*.