1135-35-2379 **Daniele Garrisi*** (daniele.garrisi@gmail.com), Namgu Inharo 100, Inha University, Department of Mathematics, 5N211, Incheon, 22212, South Korea. *Symmetric rearrangements and the Concentration-Compactness of minimizing sequences for variational problems with coupled non-linearities.*

Variational problems with coupled non-linearities arise in the study of the stability of standing-wave solutions to systems of non-linear equations, as the coupled non-linear Schrödinger equation. The stability follows from the Concentration-Compactness of minimizing sequences of a certain functional J on a constraint $S(\lambda)$. Such compactness can be obtained from the sub-additivity property of $I(\lambda) := \inf\{J(u) \mid u \in S(\lambda)\}$ defined for every λ in $\mathbb{R}^n$. The sub-additivity property rules out the dichotomic case in the Lemma of Concentration-Compactness of P. L. Lions. In scalar equations, it can be obtained with a simple rescaling argument. In coupled equations ($n \geq 2$) the problem is more challenging, although rescalings still work in some pure-power cases. In this presentation, we illustrate an approach that we introduced for a coupled non-linear Klein-Gordon equation (G., Advanced Nonlinear Studies, 2012). It is based on a symmetric decreasing rearrangement type inequality, which follows from an argument of J. Byeon (Journal of Differential Equations, 2000). Such approach allows us to broaden the class of coupled non-linearities where one can prove the sub-additivity of I and thus the Concentration-Compactness. (Received September 26, 2017)