1110-46-47 **Sergio Solimini** and **Cyril Tintarev*** (tintarev@math.uu.se). *Functional-analytic theory of concentration compactness.* Preliminary report.

Concentration-compactness method allows a functional-analytic formulation in terms of a profile decomposition. Given a group D of linear isometries on a Banach space E, profile decomposition of a sequence in E is its representation as a sum of (1) asymptotically decoupled elementary concentrations and (2) of a D-weakly vanishing remainder. The notions involved are defined as follows. (1) An elementary concentration is a sequence of the form $g_k w$, $g_k \in D$. Two elementary concentrations $g_k v$ and $g_k w$ are called asymptotically decoupled if $g_k^{-1} h_k$ converges weakly to zero. (2) A sequence $(v_k) \subset E$ is called D-weakly vanishing if for any sequence $(g_k) \subset D$, $g_k v_k$ converges weakly to zero.

A non-compact imbedding of E into a topological vector space Y is called cocompact (relative to D) if every D-weakly vanishing sequence in E vanishes in the topology of Y. Imbeddings of homogeneous Besov and Triebel-Lizorkin (including Sobolev) spaces into L^p are cocompact relative to translations to dilations.

We state a general result for existence of profile decomposition in Banach spaces which extends previously known results for Hilbert spaces and spaces of Sobolev type. (Received February 02, 2015)