1125-49-2288 **Pierre R. Marechal*** (pr.marechal@gmail.com), Institut de Mathématiques de Toulouse, Université Paul Sabatier, 31400 Toulouse, France. *A general mollifier approach to the regularization of linear ill-posed problems.*

The use of mollifiers for the regularization of linear inverse problems finds its roots in the late 80's and early 90's. Two approaches have developed independently: the well known approximate inverses on the one hand, based on duality in Hilbert spaces, and Fourier synthesis on the other hand, which belongs to variational methods. Both approaches have in common that, prior to any technical choice, a target object is clearly defined in terms of the unknown true object: the initial ill-posed problem is replaced by that of recovering a smoothed version of the unknown object, smoothness being expressed in terms of convolution. Here, we propose a general construction for the variational approach which, in addition to extending the realm of applicability, also offers a lot of flexibility in the choice of the target object. We also provide convergence results for this approach. (Received September 20, 2016)