1078-30-198        **Alexander L Volberg\*** (`volberg@math.msu.edu`), MSRI, 17 Gauss way, Berkeley, CA 94720.
*Astala's conjecture and non-homogenous harmonic analysis.*

Astala proved the sharp Hausdorff dimension distortion results for quasiconformal mappings of the plane. He conjectured that the borderline result, namely, the result where the Hausdorff dimension is replaced by Hausdorff measure in sharp dimension also holds. This conjecture was proved not long ago by M. Lacey, E. Sawyer and I. Uriarte-Tuero. The proof is not easy and it hinges on a certain highly non-trivial weighted estimate of a Singular Operator. It will be shown in the talk how to imbed this estimate to the realm of non-homogenous Harmonic Analysis, make it an unweighted estimate in this new environment, and significantly simplify the proof as a result of this point of view. (Received December 07, 2011)