983-42-750 Manos I. Papadakis* (mpapadak@math.uh.edu), Department of Mathematics, 651 Philip G. Hoffman Hall, Houston, TX 77204-3008, Qiyu Sun, Department of Mathematics, 651 Philip G. Hoffman Hall, Houston, TX 77204-3008, Ioannis A. Kakadiaris, Department of Computer Science, MS CSC 3010, University of Houston, 4800 Calhoun, Houston, TX 77204-3010, Zhemin Tan, Department of Physics, University of Houston, Houston, TX 77204-5003, Donald K. Kouri, Department of chemistry, Department of Physics, University of Houston, Houston, TX 77204-5003, and David J Hoffman, Department of Chemistry and Ames Laboratory, Iowa State University, Ames, Iowa 50011. Symmetric Univariate QM Filters with Gaussian Decay. Preliminary report.

We will present a new class of univariate, symmetric, C^{∞} low pass filters associated with scaling functions with Gaussian decay in the spatial domain. We will show that for any arbitrarily small given size of their transition band, such filters can be constructed and that they can approximate alomst uniformly the ideal (Shannon)low pass filters. We will also prove that we can construct such filters with any degree of flatness at $\pm 1/2$. (Received September 23, 2002)