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**Anomalous Scattering of HgSe Nanoclusters in Zeolites using Synchrotron X-ray Radiation.** M. Castro-Colin, A.M. Milinda, S.C. Moss, W. Donner, A.J. Jacobson, E. Anokhina, Physics Dept., Chemistry Dept., U. of Houston, Houston, TX 77204 USA.

HgSe, has been grown inside LTL and Nd-Y zeolites (tubular and spherical nanosized pores, respectively). A first sharp diffraction peak is observed in an X-ray diffraction profile associated to the clustering of HgSe, whose size is bound by the zeolite pore diameter. The combined effect of guest materials properties as well as the charge imbalance inside the pore, affect the cluster-cluster correlation (clusters in separate pores), via occupational and/or orientational order. These correlations are expressed through a broad diffuse modulation, absent in the pure host, upon which the more obvious, Bragg peaks are imposed. This effect is suggested through preliminary pair-distribution function (PDF) data. Anomalous scattering experiments carried out both below the Se K-edge and the Hg L-edge, as well as off-edge for each zeolite, aided in calculating average crystallographic parameters of HgSe. These results and further PDF analyses promise to reveal an understanding of the structural configuration and cluster allocation mechanisms. A potential technological application of this system could arise, due to the transparency of these zeolites and ease of interaction of visible light with species contained within the pores.\* M.C-C. now at U.T. El Paso.

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