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Variation of the electronic densities of states as a function of impurity concentration in amorphous bismuth alloys ZAAHEL MATA-PINZON[1], ARIEL ALBERTO VALLADARES, Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México. Apartado Postal 70-360, México D. F. 04510, México, ALEXANDER VALLADARES, RENELA MARIA VALLADARES, Facultad de Ciencias, Universidad Nacional Autónoma de México. Apartado Postal 70-542, México D. F. 04510, México — The properties of materials are strongly related to their atomic topology, especially when we compare properties related to the ordered and disordered phases. Using Density Functional Theory methods on 64-atom supercells we obtain the structure and calculate the electronic density of states (eDOS) as a function of the concentration of lead, thallium or antimony in an amorphous bismuth supercell. This is done to investigate how the eDOS affects the superconducting transition temperature (T_c), taking into account the measurements made by Shier and Ginsberg[2] on contaminated amorphous bismuth thin films.

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[2]J. S. Shier and D. M. Ginsberg, Phys. Rev., vol. 384, p. 147, 1966

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