

ELECTRON MICROSCOPY OF QUASICRYSTALLINE PHASES

José Reyes-Gasga

Instituto de Física, UNAM

Apartado Postal 20-364, 01000 México D.F., MEXICO

The existence of quasicrystalline phases is now well accepted. The phase reported by Shechtman et al. (1) is characterized by long-range icosahedral order and has been called the icosahedral phase (2). The discovery of this phase meant the beginning of several reports on the observation of nonconventional structures such as the decagonal phase (3), the octagonal phase (4), the dodecagonal phase (5) and their approximant phases (6). All these structures are now known as quasicrystalline phases and have been observed in a wide range of alloys (7). In this talk I want to present the work done by my colleagues and myself in this field. We have principally used electron microscopy for these studies and have analyzed the quasicrystalline phases in Al-Mn, Al-Mn-Si, Al-Cu-Co, Al-Cu-Co-Si systems among others.

1. D. Shechtman, I. Blech, D. Gratias and J. W. Cahn, *Phys. Rev. Lett.*, 53 (1984) 1951.
2. P. A. Bancel and P. A. Heiney, *Phys. Rev. B*, 33 (1986) 7917.
3. L. Bendersky, *Phys. Rev. Lett.*, 55 (1985) 1461.
4. M. Wang, H. Chen and K. H. Kuo, *Phys. Rev. Lett.*, 59 (1987) 1010
5. T. Ishimasa, H. V. Nissen and Y. Fukano, *Phys. Rev. Lett.*, 55 (1985) 511.
6. J. Reyes-Gasga, M. Avalos-Borja and M. José-Yacamán, *J. Appl. Phys.* 63 (1988) 1419.
7. M. José-Yacamán, D. Romeu, V. Castaño and A. Gómez (eds.), *Quasicrystals and Incommensurate Structures in Condensed Matter*, Proc. 3rd Int. Meet. on Quasicrystals, Vista Hermosa, Mexico, 1989, World Scientific Press, Singapore, 1990.