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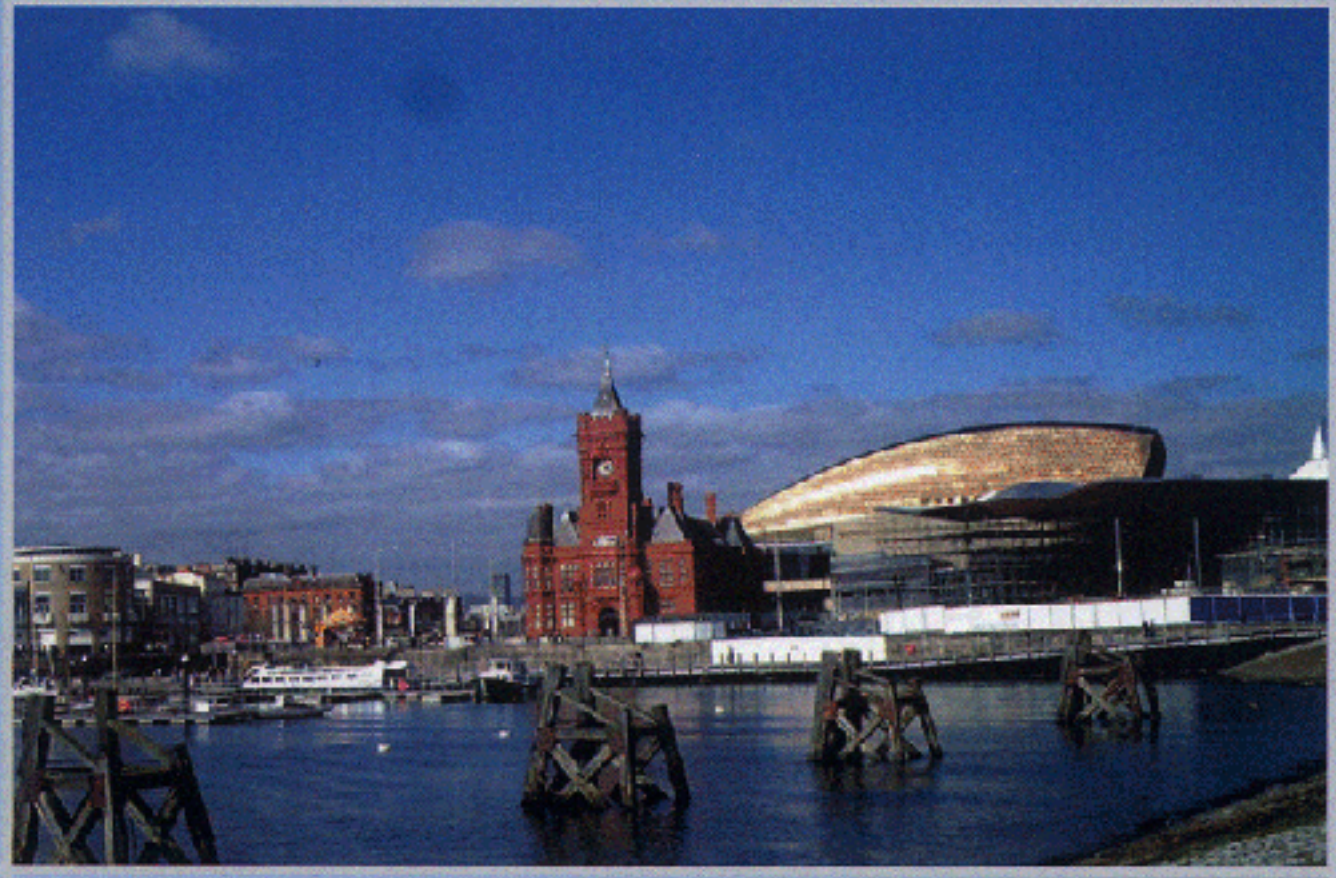

Book of Abstracts

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MÖSSBAUER STUDY OF $NiCr_{1.5}Fe_{0.5}O_4$

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The ultimate single phase $NiCr_{1.5}Fe_{0.5}O_4$ sample was obtained for annealed 12 hr in atmosphere at 1000 ℃ after the sol-gel processing. The Crystalline structure of $NiCr_{1.5}Fe_{0.5}O_4$ was spinel cubic structure with a lattice constant a_0 = 8.312 Å at room temperature. Mössbauer spectra were measured at various temperatures ranging from 4.2 to 400 K. The spectrum at room temperature was fitted to two magnetic components of the magnetic hyperfine fields H_{hf} = 357 and 316 kOe. The magnetic Néel temperature (T_N) of the Fe doped nickel chromite sample is determined to be 375 K by the temperature dependence of magnetic curve. The electric quadrupole splittings (ΔE_Q) were found to be nearly zero values below the T_N. The values of the isomer shifts show that of all temperature ranges the states are ferric. As a below the T_N, the shape of the Mössbauer spectra show that the line broadening and the line-width difference between 1, 6 and 3, 4 with the accompanying relaxation effects.

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