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R. U. Ichikawa^{a*}, J. P. R. L. L. Parra^b, M. L. Martins^c, W. K. Yoshito^a,
M. J. Saeki^b, X. Turrillas^d, L. G. Martinez^a

^aInstituto de Pesquisas Energéticas e Nucleares, São Paulo - SP, Brasil (IPEN/CNEN).

^bUniversidade Estadual Paulista Júlio de Mesquita Filho, Botucatu - SP, Brasil (UNESP).

^cNiels Bohr Institute - University of Copenhagen, Copenhagen, Denmark.

^dInstitut de Ciència de Materials de Barcelona, Bellaterra, Espanha (ICMAB/CSIC).

Nanostructured magnetic materials have been intensively studied due to their singular properties and applications, which emerge from their small dimensions. Among these magnetic materials, Mn-Zn ferrites have been widely used in biomedical area as components of drug delivery system, contrast agents in magnetic resonance imaging (MRI) and hyperthermia agents for cancer treatments. For a deeper understanding of the magnetic properties of Mn-Zn ferrites a detailed knowledge of its structure in the three dimensions, such as mean crystallite sizes and microstrains is required. In this work, Warren-Averbach and Whole Powder Pattern methods were applied in nanostructured Mn-Zn ferrites, precipitated by NaOH under different concentrations, in order to study its influence on mean crystallite sizes and microstrains. The crystallite sizes distributions were also obtained assuming a lognormal distribution function. The size-strain analysis provided important results to steer potential applications of these Mn-Zn ferrites.