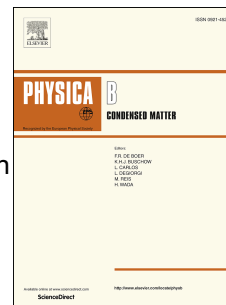


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# Wavelet analysis of extended X-ray absorption fine structure data: Theory, Application

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**Abstract** Fourier transform (FT) plays an indispensable role in the quantitative analysis of extended X-ray absorption fine structure (EXAFS). The fitting of FT-EXAFS has already solved many scientific issues. However, FT is not well suited for signals which involve transient processes. More and more complex and obscure systems require to be studied with the development of modern science and technology, especially the complex system showing overlapped single-/multi-scattering pathways in EXAFS spectrum, the unknown system involving atoms with similar atom numbers and some other unusual systems that cannot be solved only by the conventional FT and fitting method. Wavelet transform (WT) of EXAFS spectrums discerns the contribution of each pathway not only in  $R$ -space but also in  $k$ -space at the same time. The maximums of  $k$ - $R$  contour map of the WT coefficients'

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