# An approach to wavelets using abstract harmonic analysis

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102 Bradley Hall, 4:00 pm
(Tea 3:30 pm Math Lounge)

**Abstract**

Over the past ten years, wavelets have emerged as popular bases for powerful new transforms used for image compression and signal processing. This talk will begin with an introduction to how wavelets naturally arise in these contexts. The more classical Fourier transform has been employed as a central tool in the construction and analysis of wavelets in $\mathbb{R}^n$. In the body of the talk, we will examine wavelets by using instead the unitary representations of the groups whose actions underlie the wavelet structures. This more abstract approach leads to a generalization of the related concept of a multiresolution analysis and to the construction of new examples of wavelets.

This talk should be accessible to general faculty.

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