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H.-Q. Bui and **R. S. Laugesen*** (Laugesen@uiuc.edu), Department of Mathematics, University of Illinois, Urbana, IL 61801. *Affine synthesis onto Lebesgue and Hardy spaces.*

Our goal is to synthesize surjectively onto the classical Lebesgue and Hardy spaces, from discrete analogues of those spaces, by using small-scale affine systems.

We assume very little about the synthesizing function except that it has nonvanishing integral. Thus the ability to decompose arbitrary functions into linear combinations of translates and dilates of the synthesizer requires no special properties of the synthesizer.

The corresponding analysis operator is shown to map the Lebesgue and Hardy spaces into discrete Lebesgue and Hardy spaces, respectively.

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