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Joshua Michael Siktar*, jsiktar@andrew.cmu.edu. *Recasting the Proof of Parseval's Equation*. Preliminary report.

We generalize aspects of Fourier Analysis from intervals on \mathbb{R} to bounded and measurable subsets of \mathbb{R} . In doing so, we obtain two interesting results. The first is a new proof of the famous Integral Cauchy-Schwarz Inequality. The second is a restatement of Parseval's Equation that doubles as a representation of integrating bounded and measurable functions over bounded and measurable subsets of \mathbb{R} . (Received September 09, 2018)