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John A Holbrook* (jholbroo@uoguelph.ca), 50 Stone Road E, Guelph, Ontario N1G 2W1, Canada. *Error-correcting quantum codes and variations on the numerical range.*

Given the operator sum representation of a quantum channel, the Knill-Laflamme criterion for correctable code subspaces led to the study of a new type of numerical range: the so-called "higher-rank numerical range" (applied to combinations of the error operators for the channel). This talk will survey the remarkable developments in the theory of these ranges, including convexity results and the study of the statistical distribution of points within the classical numerical range. Returning to the original motivation we'll consider the extension of such results to several operators simultaneously - the "joint higher-rank numerical ranges". (Received October 30, 2011)