Recent results on the higher rank numerical range

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The study of higher rank numerical ranges was motivated by quantum error correction. It turns out the higher rank numerical range is also useful in the study of many other topics such as isotropic subspaces, matrix equations, dilation theory, perturbation of operators, matrix inequalities, preserver problems, joint numerical ranges and joint essential numerical ranges, In this talk, some recent results on the joint numerical range and its connections to other subjects will be discussed.