



# ICECA

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## The Burge correspondence and crystal graphs

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joint work with Joseph Pappé and Anne Schilling

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The Burge correspondence yields a bijection between simple labelled graphs and semistandard Young tableaux of threshold shape. We characterize the simple graphs of hook shape by peak and valley conditions on Burge arrays. This is the first step towards an analogue of Schensted's result for the RSK insertion which states that the length of the longest increasing subword of a word is the length of the largest row of the tableau under the RSK correspondence. Furthermore, we give a crystal structure on simple graphs of hook shape. The extremal vectors in this crystal are precisely the simple graphs whose degree sequence are threshold and hook-shaped.