N. Thiem defined unipotent polytopes $U(\beta, P)$ in connection to certain representations of the unipotent group of upper triangular matrices over a finite field. In this talk we will define two subpolytopes of $U(\beta, P)$ where $P$ is the line poset on $[n]$ and $\beta$ is the composition $(1^n)$. These two subpolytopes denoted $NC$ and $NN$ arise as the convex hull of non-crossing and non-nesting partitions of $[n]$, respectively. The $NN$ polytope corresponds to Stanley’s chain polytope of the root lattice of type A. As such, some of its combinatorics is understood but not all. In particular we will provide a description of its 1-skeleton and extend this description to $NC$. Moreover, we will show how $NC$ and $NN$ can be thought of as $R$-polytopes (i.e. as polytopes arising from relations on a finite set) and characterize different types of faces for $R$-polytopes in general. This is joint work with F. Alinieifard, N. Bergeron, S. Li, F. Saliola. (Received September 21, 2017)