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The **cd**-index encodes the flag  $f$ -vector of an Eulerian poset. A poset is Gorenstein\* if it is Eulerian and the associated chain complex is Cohen-Macaulay. The most natural example of a Gorenstein\* poset is the face lattice of a convex polytope. For Gorenstein\* posets Stanley stated two conjectures: (1) The **cd**-index for Gorenstein\* poset is non-negative. (2) The **cd**-index for Gorenstein\* lattice is coefficientwise minimized by the **cd**-index of the simplex of the same dimension.

Using techniques from algebraic geometry, Kalle Karu proved Stanley's first conjecture, that the **cd**-index of a Gorenstein\* posets is non-negative.

We will discuss the proof of the second conjecture. The essential step is to prove the inequality  $\Psi([\hat{0}, x]) \cdot \text{Pyr}(\Psi([x, \hat{1}])) \leq \Psi(L)$  for a Gorenstein\* lattice  $L$ . If time permits, we present how to sharpen this inequality. (Received August 28, 2006)