1116-13-2627 **Hailong Dao*** (hdao@ku.edu), Lawrence, KS 66045. *On the relationship between depth and cohomological dimension.*

(joint work with Shunsuke Takagi) Let (S, m) be an n-dimensional regular local ring essentially of finite type over a field and let I be an ideal of S. We prove that if depth$S/I \geq 3$, then the cohomological dimension $\mathrm{cd}(S, I)$ of I is less than or equal to $n - 3$. We also show, under the assumption that S has an algebraically closed residue field of characteristic zero, that if depth$S/I \geq 4$, then $\mathrm{cd}(S, I) \leq n - 4$ if and only if the local Picard group of the completion $\widehat{S/I}$ is torsion. We give a number of applications, including sharp bounds on cohomological dimension of ideals whose quotients satisfy good depth conditions such as Serre's conditions (S_i). (Received September 22, 2015)