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H. Andersen* (and02626@umn.edu). *Hard Lefschetz Property of Symplectic Structures on Compact Kähler Manifolds*. Preliminary report.

In 1996, B. Khesin and D. McDuff questioned whether or not there exists a path of symplectic forms $\{\omega_t\}$ such that the dimension $h_{hr}^k(M, \omega)$ of the space of symplectic harmonic k -forms varies along t . Recently, Y. Cho provided an answer by constructing a compact, simply-connected Kähler manifold (M, J, ω) of complex dimension 3, which possesses a symplectic form σ that does not satisfy the hard Lefschetz property yet is symplectically deformation equivalent to the Kähler form ω ; the first example of its kind. We generalize the construction to complex dimension 4, and consider further applications. (Received August 30, 2016)