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Michael Dewar* (mdewar@mast.queensu.ca). *The image and kernel of Atkin's U_p operator modulo p .*

We determine the precise image of Atkin's U_p operator acting on reduced modular forms. The result holds for any level coprime to p . In particular, we determine the dimension of the kernel of U_p at weights $k > p + 1$. This contrasts with the low-weight case in which the dimension of the kernel is still very mysterious and erratic. (Received July 30, 2011)