1105-53-132 **Netanel Samuel Blaier*** (netanel@math.mit.edu). *A higher dimensional generalization of the Johnson homomorphism using quantum Massey products.* Preliminary report.

Many problems in symplectic topology can be phrased as questions about the topology of the symplectomorphism group. We consider the problem of identifying the symplectic isotopy class of a symplectomorphism $\phi : M \to M$ which acts trivially on cohomology. When $M = \Sigma_g$ is a surface, the group of such symplectomorphism is well known to low dimensional topologists : it is the Torelli group, an important but poorly understood subgroup with many interesting connections to other areas of mathematics. In the early 1980's, Dennis Johnson revolutionized the study of this group by introducing a sequence of homomorphisms τ_k detecting delicate intersection-theoretic information. We show that the definition of the Johnson homomorphisms can be extended to higher dimensions using the A_∞-algebra structure on the Morse complex coming from quantum Massey products on mapping tori. As a sample application, we consider a pencil of degree d hypersurfaces in $\mathbb{P}^3$ with base locus B, and form a symplectic blowup of small energy $M = Bl_B\mathbb{P}^3$. Explicitly computing the second quantum Johnson homomorphism associated to certain symplectomorphism $\phi : M \to M$, we prove that it represents a nontrivial symplectic isotopy class. (Received September 14, 2014)