ABSTRACT. This paper gives a generalization of some results on Hilbert schemes of points on surfaces. Let $M^G(r, n)$ (resp. $M^U(r, n)$) be the Gieseker (resp. Uhlenbeck) compactification of the moduli spaces of stable bundles on a smooth projective surface. We show that, for surfaces satisfying some technical condition:

- (a) The natural map $M^G(r, n) \to M^U(r, n)$ generalizing the Hilbert-Chow morphism from the Hilbert scheme of n points on S to the n-th symmetric power, is strictly semi-small in the sense of Goresky-MacPherson with respect to some stratification.
- (b) Let $P_t(X)$ be the Intersection Homology Poincare polynomial of X. Generalizing the computation due to Gottsche and Sorgel we prove that the ratio $\frac{\sum_n q^n P_t(M^G(r,n))}{\sum_n q^n P_t(M^U(r,n))}$ is a character of a certain Heisenberg-type algebra.
- (c) Generalizing results of Nakajima we show how to obtain the action of the Heisenberg algebra on the cohomology using correspondences.