Lectures on Hilbert Schemes of Points on Surfaces (Paperback)

By Hiraku Nakajima

American Mathematical Society, United States, 1999. Paperback. Book Condition: New. 246 x 175 mm. Language: English . Brand New Book. The Hilbert scheme $X^{[n]}$ of a surface X describes collections of n (not necessarily distinct) points on X. More precisely, it is the moduli space for 0-dimensional subschemes of X of length n. Recently it was realized that Hilbert schemes originally studied in algebraic geometry are closely related to several branches of mathematics, such as singularities, symplectic geometry, representation theory - even theoretical physics.The discussion in the book reflects this feature of Hilbert schemes. For example, a construction of the representation of the infinite dimensional Heisenberg algebra (i.e., Fock space) is presented. This representation has been studied extensively in the literature in connection with affine Lie algebras, conformal field theory, etc. However, the construction presented in this volume is completely unique and provides the unexplored link between geometry and representation theory. The book offers a nice survey of current developments in this rapidly growing subject. It is suitable as a text at the advanced graduate level.

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