1.	Record Nr.	UNINA9910154744603321
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	Titolo	An Extension of Casson's Invariant. (AM-126), Volume 126 / / Kevin Walker
	Pubbl/distr/stampa	Princeton, NJ : , : Princeton University Press, , [2016] ©1992
	ISBN	1-4008-8246-X
	Descrizione fisica	1 online resource (140 pages) : illustrations
	Collana	Annals of Mathematics Studies ; ; 308
	Classificazione	SK 320
	Disciplina	514/.3
	Soggetti	Three-manifolds (Topology) Invariants
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Nota di bibliografia	Includes bibliographical references.
	Nota di contenuto	Frontmatter -- Contents -- 0. Introduction -- 1. Topology of Representation Spaces -- 2. Definition of -- 3. Various Properties of -- 4. The Dehn Surgery Formula -- 5. Combinatorial Definition of -- 6. Consequences of the Dehn Surgery Formula -- A. Dedekind Sums -- B. Alexander Polynomials -- Bibliography
	Sommario/riassunto	This book describes an invariant, l, of oriented rational homology 3-spheres which is a generalization of work of Andrew Casson in the integer homology sphere case. Let R(X) denote the space of conjugacy classes of representations of p(X) into SU(2). Let (W,W,F) be a Heegaard splitting of a rational homology sphere M. Then I(M) is declared to be an appropriately defined intersection number of R(W) and R(W) inside R(F). The definition of this intersection number is a delicate task, as the spaces involved have singularities. A formula describing how I transforms under Dehn surgery is proved. The formula involves Alexander polynomials and Dedekind sums, and can be used to give a rather elementary proof of the existence of l. It is also shown that when M is a Z-homology sphere, l(M) determines the Rochlin invariant of M.