

1. Record Nr.	UNINA9910791746503321
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Titolo	Classifying spaces of degenerating polarized Hodge structures // Kazuya Kato and Sampei Usui
Pubbl/distr/stampa	Princeton, New Jersey ; ; Oxfordshire, England : , : Princeton University Press, , 2009 ©2009
ISBN	1-4008-3711-1 0-691-13822-2
Edizione	[Course Book]
Descrizione fisica	1 online resource (349 p.)
Collana	Annals of Mathematics Studies ; ; Number 169
Classificazione	SI 830
Disciplina	514/.74
Soggetti	Hodge theory Logarithms
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Frontmatter -- Contents -- Introduction -- Chapter 0. Overview -- Chapter 1. Spaces of Nilpotent Orbits and Spaces of Nilpotent $i$ -Orbits -- Chapter 2. Logarithmic Hodge Structures -- Chapter 3. Strong Topology and Logarithmic Manifolds -- Chapter 4. Main Results -- Chapter 5. Fundamental Diagram -- Chapter 6. The Map $D \rightarrow \text{val DSL}(2)$ -- Chapter 7. Proof of Theorem A -- Chapter 8. Proof of Theorem B -- Chapter 9. $b$ -Spaces -- Chapter 10. Local Structures of $\text{DSL}(2)$ and $\text{DbSL}(2), 1$ -- Chapter 11. Moduli of PLH with Coefficients -- Chapter 12. Examples and Problems -- Appendix -- References -- List of Symbols -- Index
Sommario/riassunto	In 1970, Phillip Griffiths envisioned that points at infinity could be added to the classifying space $D$ of polarized Hodge structures. In this book, Kazuya Kato and Sampei Usui realize this dream by creating a logarithmic Hodge theory. They use the logarithmic structures begun by Fontaine-Illusie to revive nilpotent orbits as a logarithmic Hodge structure. The book focuses on two principal topics. First, Kato and Usui construct the fine moduli space of polarized logarithmic Hodge structures with additional structures. Even for a Hermitian symmetric domain $D$ , the present theory is a refinement of the toroidal compactifications by Mumford et al. For general $D$ , fine moduli spaces

may have slits caused by Griffiths transversality at the boundary and be no longer locally compact. Second, Kato and Usui construct eight enlargements of  $D$  and describe their relations by a fundamental diagram, where four of these enlargements live in the Hodge theoretic area and the other four live in the algebra-group theoretic area. These two areas are connected by a continuous map given by the  $SL(2)$ -orbit theorem of Cattani-Kaplan-Schmid. This diagram is used for the construction in the first topic.

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