

1. Record Nr.	UNINA9910810773803321
Autore	Blume Maria
Titolo	Research methods in language acquisition : principles, procedures, and practices // Maria Blume and Barbara C. Lust
Pubbl/distr/stampa	Washington, District of Columbia : , : De Gruyter Mouton : , : American Psychological Association, , 2017 ©2017
ISBN	3-11-041560-7 3-11-041533-X
Edizione	[First edition.]
Descrizione fisica	1 online resource (324 pages)
Collana	Language and the Human Lifespan Series
Disciplina	401/.930721
Soggetti	Language acquisition - Research - Methodology Language acquisition - Research - Data processing Language acquisition - Psychological aspects - Research Language and languages - Age differences Children - Language - Psychological aspects Speech acts (Linguistics) - Research Psycholinguistics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Frontmatter -- Contents -- Preface -- Acknowledgments -- Introduction -- 1. The Challenge of Studying Language -- 2. Preparing to Work With Children, Schools, and Families -- 3. Creating the Data I: Working in Teams, Basic Data Collection, Data Sharing, and Data Management -- 4. Studying Language Acquisition Through Collecting Speech -- 5. Introduction to Experimental Methods: Design and Analysis -- 6. Experimental Tasks for Generating Language Production Data -- 7. Experimental Tasks for Generating Language Comprehension Data -- 8. The Grammaticality Judgment Task -- 9. Creating the Data II: Begin Data Processing -- 10. Creating the Data III: Preparing for Data Analysis -- 11. Interpreting the Data: Scientific Inference -- 12. Assessing Multilingual Acquisition -- 13. Introduction to Infant Testing Methods in Language Acquisition Research -- 14. Conclusions and Proceeding to the Future -- Appendix A: Transcription

Sommario/riassunto

Language acquisition research is challenging—the intricate behavioral and cognitive foundations of speech are difficult to measure objectively. The audible components of speech, however, are quantifiable and thus provide crucial data. This practical guide synthesizes the authors' decades of experience into a comprehensive set of tools that will allow students and early career researchers in the field to design and conduct rigorous studies that produce reliable and valid speech data and interpretations. The authors thoroughly review specific techniques for obtaining qualitative and quantitative speech data, including how to tailor the testing environments for optimal results. They explore observational tasks for collecting natural speech and experimental tasks for eliciting specific types of speech. Language comprehension tasks are also reviewed so researchers can study participants' interpretations of speech and conceptualizations of grammar. Most tasks are oriented towards children, but special considerations for infants are also reviewed, as well as multilingual children. Chapters also provide strategies for transcribing and coding raw speech data into reliable data sets that can be scientifically analyzed. Furthermore, they investigate the intricacies of interpretation so that researchers can make empirically sound inferences from their data and avoid common pitfalls that can lead to unscientific conclusions.

---

2. Record Nr.	UNINA9910254581003321
Autore	Prodan Emil
Titolo	A computational non-commutative geometry program for disordered topological insulators // by Emil Prodan
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2017
ISBN	3-319-55023-3
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (X, 118 p. 19 illus. in color.)
Collana	SpringerBriefs in Mathematical Physics, , 2197-1757 ; ; 23
Disciplina	512.4
Soggetti	Physics Mathematical physics Condensed matter K-theory Functional analysis Mathematical Methods in Physics Mathematical Physics Condensed Matter Physics K-Theory Functional Analysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Disordered Topological Insulators: A Brief Introduction -- Homogeneous Materials -- Homogeneous Disordered Crystals -- Classification of Homogenous Disordered Crystals -- Electron Dynamics: Concrete Physical Models -- Notations and Conventions -- Physical Models -- Disorder Regimes -- Topological Invariants -- The Non-Commutative Brillouin Torus -- Disorder Configurations and Associated Dynamical Systems -- The Algebra of Covariant Physical Observables -- Fourier Calculus -- Differential Calculus -- Smooth Sub-Algebra -- Sobolev Spaces -- Magnetic Derivations -- Physics Formulas -- The Auxiliary C*-Algebras -- Periodic Disorder Configurations -- The Periodic Approximating Algebra -- Finite-Volume Disorder Configurations -- The Finite-Volume Approximating Algebra -- Approximate Differential Calculus -- Bloch Algebras --

Canonical Finite-Volume Algorithm -- General Picture -- Explicit Computer Implementation -- Error Bounds for Smooth Correlations -- Assumptions -- First Round of Approximations -- Second Round of Approximations -- Overall Error Bounds -- Applications: Transport Coefficients at Finite Temperature -- The Non-Commutative Kubo Formula -- The Integer Quantum Hall Effect -- Chern Insulators -- Error Bounds for Non-Smooth Correlations -- The Aizenman-Molchanov Bound -- Assumptions -- Derivation of Error Bounds -- Applications II: Topological Invariants -- Class AIII in  $d = 1$  -- Class A in  $d = 2$  -- Class AIII in  $d = 3$  -- References.

---

Sommario/riassunto

This work presents a computational program based on the principles of non-commutative geometry and showcases several applications to topological insulators. Noncommutative geometry has been originally proposed by Jean Bellissard as a theoretical framework for the investigation of homogeneous condensed matter systems. Recently, this approach has been successfully applied to topological insulators, where it facilitated many rigorous results concerning the stability of the topological invariants against disorder. In the first part of the book the notion of a homogeneous material is introduced and the class of disordered crystals defined together with the classification table, which conjectures all topological phases from this class. The manuscript continues with a discussion of electrons' dynamics in disordered crystals and the theory of topological invariants in the presence of strong disorder is briefly reviewed. It is shown how all this can be captured in the language of noncommutative geometry using the concept of non-commutative Brillouin torus, and a list of known formulas for various physical response functions is presented. In the second part, auxiliary algebras are introduced and a canonical finite-volume approximation of the non-commutative Brillouin torus is developed. Explicit numerical algorithms for computing generic correlation functions are discussed. In the third part upper bounds on the numerical errors are derived and it is proved that the canonical-finite volume approximation converges extremely fast to the thermodynamic limit. Convergence tests and various applications concludes the presentation. The book is intended for graduate students and researchers in numerical and mathematical physics.

---