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Title:	Arithmetic Geometric aspects of modular groups
Authors:	Gupta, Titiksh (/jspui/browse?type=author&value=Gupta%2C+Titiksh)
Keywords:	Hyperbolic Geometry Mathematics Poincaré Disc Model Trigonometry Fuchsian groups Mobius Transformation
Issue Date:	22-Jul-2014
Publisher:	IISER M
Abstract:	The aim of this THESIS is to highlight the major developments in the arithmetic-geometric aspects of the modular group. After covering geometric aspects of Fuchsian groups, we study various variants of the Poincaré polygon theorem. Arithmetic methods like Farey Symbols have been used to describe the subgroups of $PSL(2, \mathbb{Z})$ . Graph-theoretical approach has been used to study algorithm for generating all trivalent diagrams. Finally, we conclude by describing algorithms for testing membership of matrices in $PSL(2, \mathbb{Z})$ by using the concept of Farey Symbols.
URI:	<a href="http://hdl.handle.net/123456789/400">http://hdl.handle.net/123456789/400</a> ( <a href="http://hdl.handle.net/123456789/400">http://hdl.handle.net/123456789/400</a> )
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