Title:	Design and Fabrication of Miniature Microwave Circuit Components Using Custom -made Photolithography Setup
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Abstract:	Microwave circuits find a wide range of daily life applications ranging from wireless communication and satellites to medical diagnostics. Realizing quantum systems and quantum computing has become a subject of massive interest in contemporary physics. Microwave components have become an essential part of these systems as the most successful quantum computer prototypes are based on microwave circuits. The design, fabrication, and analysis of microwave devices are tricky due to the high frequency and short wavelength signals. At the same time, these properties can be used to our advantage. At these small scales and low-noise applications, components should be intricately designed and precisely fab- ricated. Therefore designing and fabrication of these microwave components are tricky yet intriguing problems. This thesis will discuss the design and fabrication of microwave circuits and components, empha- sizing the Wilkinson power divider and Rat-Race coupler. A custom made photolithography mask aligner setup is also discussed. The setup is used in the fabrication of these components.
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