



Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses)

Sheon S. Y. Chua

Download now

[Click here](#) if your download doesn't start automatically

Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses)

Sheon S. Y. Chua

Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) Sheon S. Y. Chua

The work in this thesis was a part of the experiment of squeezed light injection into the LIGO interferometer. The work first discusses the detailed design of the squeezed light source which would be used for the experiment. The specific design is the doubly-resonant, traveling-wave bow-tie cavity squeezed light source with a new modified coherent sideband locking technique. The thesis describes the properties affecting the squeezing magnitudes and offers solutions which improve the gain. The first part also includes the detailed modeling of the back-scattering noise of a traveling Optical Parametric Oscillator (OPO). In the second part, the thesis discusses the LIGO Squeezed Light Injection Experiment, undertaken to test squeezed light injection into a 4km interferometric gravitational wave detector. The results show the first ever measurement of squeezing enhancement in a full-scale suspended gravitational wave interferometer with Fabry-Perot arms. Further, it showed that the presence of a squeezed-light source added no additional noise in the low frequency band. The result was the best sensitivity achieved by any gravitational wave detector. The thesis is very well organized with the adequate theoretical background including basics of Quantum Optics, Quantum noise pertaining to gravitational wave detectors in various configurations, along with extensive referencing necessary for the experimental set-up. For any non-experimental scientist, this introduction is a very useful and enjoyable reading. The author is the winner of the 2013 GWIC Theses Prize.

 [Download Quantum Enhancement of a 4 km Laser Interferometer ...pdf](#)

 [Read Online Quantum Enhancement of a 4 km Laser Interferomet ...pdf](#)

Download and Read Free Online Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) Sheon S. Y. Chua

From reader reviews:

Joycelyn Chambers:

Nowadays reading books are more than want or need but also get a life style. This reading addiction give you lot of advantages. The huge benefits you got of course the knowledge the particular information inside the book that improve your knowledge and information. The knowledge you get based on what kind of publication you read, if you want attract knowledge just go with knowledge books but if you want feel happy read one using theme for entertaining like comic or novel. Typically the Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) is kind of reserve which is giving the reader unforeseen experience.

Brian Kelley:

Typically the book Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) will bring someone to the new experience of reading some sort of book. The author style to clarify the idea is very unique. Should you try to find new book to read, this book very suited to you. The book Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) is much recommended to you to see. You can also get the e-book through the official web site, so you can easier to read the book.

John Olive:

The reserve untitled Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) is the guide that recommended to you to learn. You can see the quality of the e-book content that will be shown to anyone. The language that author use to explained their ideas are easily to understand. The author was did a lot of exploration when write the book, therefore the information that they share to you is absolutely accurate. You also could get the e-book of Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) from the publisher to make you more enjoy free time.

Susan Demar:

Do you like reading a book? Confuse to looking for your best book? Or your book ended up being rare? Why so many query for the book? But virtually any people feel that they enjoy with regard to reading. Some people likes examining, not only science book and also novel and Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) or maybe others sources were given expertise for you. After you know how the fantastic a book, you feel desire to read more and more. Science e-book was created for teacher or even students especially. Those guides are helping them to increase their knowledge. In various other case, beside science e-book, any other book likes Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) to make your spare time far more colorful. Many types of book like this.

**Download and Read Online Quantum Enhancement of a 4 km
Laser Interferometer Gravitational-Wave Detector (Springer
Theses) Sheon S. Y. Chua #RIN0CKSB2HQ**

Read Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) by Sheon S. Y. Chua for online ebook

Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) by Sheon S. Y. Chua Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) by Sheon S. Y. Chua books to read online.

Online Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) by Sheon S. Y. Chua ebook PDF download

Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) by Sheon S. Y. Chua Doc

Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) by Sheon S. Y. Chua Mobipocket

Quantum Enhancement of a 4 km Laser Interferometer Gravitational-Wave Detector (Springer Theses) by Sheon S. Y. Chua EPub