


LASER DEVICES

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A horizontal laser beam graphic consisting of a grey rectangular block on the left, a thin grey line extending to the right, and a starburst effect at the end.

Project PHYSNET Physics Bldg. Michigan State University East Lansing, MI

LASER DEVICES
by
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1. Procedure 1

Title: **Laser Devices**

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Version: 2/1/2000

Evaluation: Stage B0

Length: 1 hr; 8 pages

Input Skills:

1. Vocabulary: spontaneous emission, stimulated emission, population inversion (MISN-0-257).
2. Explain the basic principle of laser operation (optical pumping) (MISN-0-257).

Output Skills (Project):

- P1. Construct a lecture-length printed module on the physics of laser devices according to the directions in this module's **Text** and **Local Guide**.

External Resources (Required):

1. Access to a library and the time to construct a module.

THIS IS A DEVELOPMENTAL-STAGE PUBLICATION
OF PROJECT PHYSNET

The goal of our project is to assist a network of educators and scientists in transferring physics from one person to another. We support manuscript processing and distribution, along with communication and information systems. We also work with employers to identify basic scientific skills as well as physics topics that are needed in science and technology. A number of our publications are aimed at assisting users in acquiring such skills.

Our publications are designed: (i) to be updated quickly in response to field tests and new scientific developments; (ii) to be used in both classroom and professional settings; (iii) to show the prerequisite dependencies existing among the various chunks of physics knowledge and skill, as a guide both to mental organization and to use of the materials; and (iv) to be adapted quickly to specific user needs ranging from single-skill instruction to complete custom textbooks.

New authors, reviewers and field testers are welcome.

PROJECT STAFF

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Views expressed in a module are those of the module author(s) and are not necessarily those of other project participants.

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<http://www.physnet.org/home/modules/license.html>.

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1. Procedure

This is a learner-originated unit. You must go to the library (Physics-Astronomy library, Engineering library, or wherever) and look up recent articles about laser devices in places like *Discover*, *Scientific American*, and *Popular Science*.

Then construct a module of the usual length (one lecture's worth) using the materials you have studied.

Feel free to consult any expert who might be available in the subject under study.

Make sure the reader can learn the subject you are presenting just from your printed module alone.

Be sure to give attributions for any material taken verbatim from published material: plagiarism carries a severe penalty in the University.

Your module should be clear and concise. A student of background and level of scientific knowledge similar to yours should be able to read your module to obtain a relatively easy understanding of the subject. For this reason, your module will be judged not only for its content but also for its clarity and for how well it communicates with its prospective audience. To examine relevant communication skills, see Module 69.¹

To see how to receive credit for this module, see its *Local Guide*.

LOCAL GUIDE

To Receive Credit for this Module:

- 1 Bring your original completed module to the Exam Manager along with a completed Exam **Application** Form filled out correctly for either this unit's unit exam or for the block exam which includes this unit (in the latter case be sure to bring all of the relevant modules you constructed).
- 2 Give the Exam Manager the completed module(s) to hold while you take the Exam into the Exam Room. When there, answer any exam questions as usual. Then fill out an Exam Answer Sheet for each project module for use by the grader.
- 3 When finished, bring all of your exam materials: Exam Answer Sheets, Exam Application Form, and printed Exam, back to the Exam Manager and get your module(s). Staple the module(s) to the rest of the exam materials, in the proper order, and hand the pack to the Exam Manager.

When your exam is graded it will be judged in part on your answers to any questions that were on the exam, in part on the content of each of your modules (whether the reader can learn the subject from your write-up), and in part on the attributes of good communication listed in Module 69.

¹"Evaluating while Learning (A Project)" (MISN-0-69)

