

COLLECTION AREA
Physics/Astronomy

May 2006

I. General Purpose

Resources are selected to support the instructional and research needs of faculty, graduate, and undergraduate students in the Department of Physics and Astronomy. In Fiscal Year 2005 the Department consisted of 42 faculty members, 98 graduate students, and 70 undergraduates. There were 7 doctoral, 5 master's, and 18 bachelor's degrees awarded in FY 2005. The collection also supports instructional and research needs related to the Ames Laboratory, the Scalable Computing Laboratory, and the Erwin Fick Observatory.

II. History

The Physics Department was established in 1870 under the direction of William A. Anthony. Graduate work leading to the degree of Master of Science was first offered before 1881. In 1891 the Department was coupled with the Department of Electrical Engineering. Separated from the Department of Physics and Electrical Engineering in 1910, the name of the department changed to the Department of Physics and Illuminating Engineering. In 1915, the name changed back to the Department of Physics. In 1926, doctoral work in applied physics was added to the graduate studies program. However, the rapid development of graduate education and research in physics began after World War II, when the Institute for Atomic Research was established with Professor Frank Spedding as the Director. The present departmental name, Department of Physics and Astronomy, first appeared in the 1991-1993 General Catalog.

III. Iowa State University Program

Undergraduate Study

Students may choose physics for their major subject as preparation for diverse areas such as engineering, medicine, law, business administration, or simply as a challenging approach to personal development with an emphasis on rigorous scientific thinking. Other students choose physics as preparation towards a career as a professional physicist or a science educator. Those choosing an astronomy or astrophysics emphasis complete a minor in astronomy. The Department offers minors in both Physics and Astronomy.

Undergraduates may participate in departmental research groups to broaden their experience.

Graduate Study

The Physics and Astronomy Department offers work for the degrees master of science and doctor of philosophy with majors in applied physics, astrophysics, condensed matter physics, high energy physics, nuclear physics, and physics. Students participate in the major research programs within the department: astrophysics / astronomy, condensed matter physics, elementary particle physics, nuclear physics, physics education research, and physics of biological systems. Students in other programs can work towards a minor in physics. The department also participates in the interdepartmental minor in Technology and Social Change.

IV. Subject Boundaries

Physics and astronomy are basic natural sciences that attempt to describe and provide an understanding of our world. They serve as the underpinning of many different disciplines, including the other natural sciences and technological areas.

V. General Collection Guidelines

- A. Linguistic – English is preferred. However, if an item fulfills all other collection requirements and it is not available in translation, it may be acquired.
- B. Geographical – Not relevant
- C. Types of Materials Collected – Monographs and serials are the main focus of the collection, but dissertations, government documents, and other items are acquired as appropriate. Indexes and abstracts, both print and electronic are maintained with an increasing emphasis on electronic resources.
- D. Format of Materials – No information format is excluded.

VI. Specific Collection Guidelines

Within the subject field, content level is selected according to needs. Content levels collected are general academic, advanced academic, and professional. General academic refers to works of scholarship accessible to non-specialists or applying to broad subject areas such as survey works on a topic. Advanced academic level applies to works of

scholarship treating narrowly defined topics, but generally accessible to undergraduates, graduates and professionals reading in a specialty outside that of his/her own. Professional level applies to works of extreme technical difficulty or treating such esoteric subjects as to interest only well-trained specialists in the field. Undergraduate and graduate textbooks are collected only selectively. Conference proceedings and conference monographs are only acquired for conferences held within the preceding 24 months.

One of the major focuses is maintaining a first class journals collection. The current status of the collection has been assessed against the top physics journals in the various specialized areas of physics and astronomy according to the Institute of Scientific Information. The top serials in each area were selected by ISI Impact Factor.

Area	Total #	Cur Held	Electronic	Cancelled
Physics, Multidisciplinary (General)	40	35	32	5
Acoustics	20	15	13	1
Physics, Applied	40	35	35	4
Physics, Atomic, Molecular & Chemical	20	19	19	1
Biophysics	40	38	37	4
Physics, Conden. Matter	40	40	39	3
Physics, Fluids & Plasmas	20	14	14	3
Physics, Mathematical	20	17	17	2
Physics, Nuclear	20	15	14	4
Optics	40	30	24	5
Physics, Particles & Fields	20	16	16	1
Astronomy & Astrophysics	20	15	14	1

In recent years the department and the library have cooperated to convert much of the currently received journals into electronically accessible versions. The table above reflects the success of those efforts. In fact, in most of the cases above where the publication is not in electronic form this is usually because it does not have an electronic format available.

Although some titles are mentioned as having been cancelled above, it must be noted that these were cancelled in consultation with the department and for the most part do not reflect the department's primary research and instructional interests. Also, not reflected as a category above are many new titles that have been made available to the department through new subscriptions or through the library's consortial efforts with other institutions.

VII. Detailed Subject Areas

Weights and measures, descriptive and experimental mechanics, atomic physics, acoustics, heat, optics, radiation physics, electricity and magnetism, nuclear and particle physics, atomic energy, radioactivity, geophysics, cosmic physics, geomagnetism, practical and spherical astronomy, theoretical astronomy and celestial mechanics, astrophysics, non-optical methods of astronomy, and descriptive astronomy.

VIII. Other Resources Available

Several indexes and abstracts give the researcher and student the ability to access the journal literature in the fields of Physics and Astronomy. Interlibrary Loan service is available for obtaining materials either not available (either in print or electronically) through the Iowa State University Library.

arXiv e-Print Archive through <http://arxiv.org/>.

IX. Cross-references to Collection Policies

Atmospheric Sciences

Chemical Engineering and Biological Engineering

Chemistry

Government Documents

Mathematics

Materials Science and Engineering

X. Creation Date - September 2000

XI. Revision History – May 2006

XII. LC Class(es)

QB1-237

QB349-991

QC1-849

XIII. Bibliographer Name

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