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Summary Information

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Biographical / Historical

Prendergast received his Ph.D. at Columbia in 1954 and then went to the University of Chicago, returning to Columbia as a professor in 1962. He chaired the Columbia astronomy department from 1978 to 1984, retiring in 2000 with a long trail of successful young theorists in his wake. Prendergast was an icon in the field of dynamics of many-body systems. He also was well known for a series of papers in the 1960s and 1970s, written with Geoffrey and Margaret Burbidge, on understanding the rotation curves of galaxies. Numerous theoretical studies of the structure of galaxies followed, and he was a pioneer in the study of X-ray binary systems. In addition to Prendergast's professional accomplishments, he was also a skilled pianist and an avid sailor. During his long career, Prendergast became famous for using yellow legal pads, on which he had scrawled analyses of many problems in astronomical dynamics. His classes were renowned for the exactitude of his standards and the high percentage of faculty in attendance. During one year, regularly attending faculty outnumbered students.

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Summary

Correspondence, manuscripts, lectures, notes, and printed materials of Kevin H. Prendergast, a prominent astronomer who worked in the fields of dynamics of many-body systems, the rotation curves of galaxies, and X-ray binary systems.

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Arrangement

This collection is arranged into 12 series.

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Administrative Information

Publication Statement

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Revision Description

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Immediate Source of Acquisition

2004-2005-M35: Source of acquisition--Jane Prendergast. Method of acquisition--Gift; Date of acquisition--2/1/2005.

Processing Information

Papers processed Wei-Hwan Chiang 10/2005.

Accruals

Materials may have been added to the collection since this finding aid was prepared. Contact rbml@columbia.edu for more information.

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Controlled Access Headings

- Cosmology
- X-ray binaries
- Barred galaxies -- Rotation
- Galactic dynamics
- Stellar dynamics
- Spiral galaxies -- Rotation
- Dwarf galaxies
- Stars -- Clusters
- X-ray sources, Galactic -- Accretion

- Asteroids
- Columbia University. Department of Astronomy

Collection Inventory

Series I: Personal

Subseries I.1: Photography

Title/Description	Instances
Photograph (1)	box 1

Subseries 1.2: Correspondence

Title/Description	Instances
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Contopolous	box 1
Penthame	box 1
Pesch, Peter	box 1
Slyz, Adrienne	box 1
Spiegel, Edward	box 1
Xu, Kun	box 2

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Series II: Astronomy

Subseries II.1: Cosmology

Title/Description	Instances
Equations about cosmology <u>Physical Description</u> : 166 pages	box 3

Subseries II.2: Dynamics of Galaxies: General

Title/Description	Instances
Galactic Dynamics	box 3
Gravitational slab problem	box 3
One-dimensional self-gravitating gas	box 3
Time dependent one-dimensional stellar system	box 3

Self consistent galaxy models (axisymmetric)	box 3
Instability of rings (of mass)	box 4
Computer simulation of galactic evolution	box 4
Stochastic star formation in disk galaxies (mathematical description of a game theory)	box 4
Stellar dynamics with star formation	box 4
"Oseen" approximation based on streamlines, etc.	box 4
Theoretical studies of M101	box 4

Subseries II.3: Dynamics of Galaxies: Spiral Galaxies

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Stability of spiral arm shocks	box 5
Thin gas disk: asymptotic theory of spiral arms (warped disk as finite system of coupled rings)	box 5
Spiral Arm Problems: Linblad Resonance	box 5

Subseries II.4: Dynamics of Galaxies: Barred Spiral Galaxies

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Barred Spirals	box 5
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Barred spiral galaxies—some plots & shock waves in barred spiral galaxies	box 6
Barred spirals Roche modes	box 6
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Potential of oblate spheroid	box 6
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Theoretical studies of gas flow in barred spiral galaxies	box 7
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Barred spiral galaxies: material for a talk based on a paper on "Theoretical studies of gas flows in barred spiral galaxies" by K. Prendergast	box 7
Barred spiral galaxies [talk], Yale, 1978	box 7
Talk given by Kevin Prendergast on barred spiral galaxies, 1982	box 7

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Marseille Observatory simulation results used for Columbia Astrofest talk, 1996	box 19
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Subseries II.6: Dynamics of Galaxies: Star-Gas Interactions in Galaxies

Title/Description	Instances
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Two-fluid hydrodynamic model, 1978	box 19
3-fluid model (gas, high mass star, low mass star)	box 19
Two-fluid star-gas model [talk], Charlottesville, Virginia	box 20
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