

## Prof. Gordon BAYM (Univ. Illinois)

- Born in N.Y. (July 1, 1935), PhD in 1960 (Harvard Univ.)
- Theoretical Physics:
  - Condensed matter physics, Atomic physics, Nuclear physics, Astrophysics
- Taekwondo : black belt (4 dan)
- Member: National Academy of Sciences, American Philosophical Society, American Academy of Arts and Sciences



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## 2002 Hans Bethe Prize

"For his superb synthesis of fundamental concepts which have provided an understanding of matter at extreme conditions, ranging from crusts and interiors of **neutron stars** to matter at ultrahigh temperature."

## 2008 Lars Onsager Prize

*"For fundamental applications of statistical physics to quantum fluids, including **Fermi liquid theory** and ground-state properties of **dilute quantum gases**, and for bringing a conceptual unity to these areas."*

## 2011 Eugene Feenberg Memorial Medal

"For the self-consistent conserving approach to many-body perturbation theory that provided a solid platform for perturbative expansions, and for his novel applications of quantum many-body methods in **nuclear physics**, **astrophysics**, highly **condensed matter**, and **atomic physics**"

# Some of his groundbreaking papers

## Conservation Laws and Correlation Functions

GORDON BAYM AND LEO P. KADANOFF

*Institute for Theoretical Physics, University of Copenhagen, Copenhagen, Denmark*

(Received May 15, 1961)

## Effective Interaction of $\text{He}^3$ Atoms in Dilute Solutions of $\text{He}^3$ in $\text{He}^4$ at Low Temperatures

J. BARDEEN, G. BAYM,\* AND D. PINES

*Department of Physics and Materials Research Laboratory,† University of Illinois, Urbana, Illinois*

(Received 10 November 1966)

## NEUTRON STAR MATTER

GORDON BAYM †, HANS A. BETHE †† and CHRISTOPHER J. PETHICK †††

*Nordita, Copenhagen, Denmark*

Received 4 May 1971

## THE GROUND STATE OF MATTER AT HIGH DENSITIES: EQUATION OF STATE AND STELLAR MODELS\*

GORDON BAYM, CHRISTOPHER PETHICK,† AND PETER SUTHERLAND

*Department of Physics, University of Illinois, Urbana*

*Received 1971 June 9*

# Some of his groundbreaking papers

## Can a neutron star be a giant MIT bag? ☆

G. Baym, S.A. Chin

Department of Physics, University of Illinois at Urbana-Champaign, Urbana, Illinois 61801, USA

Received 30 March 1976, Available online 14 October 2002

## **SUPERNOVA THEORY<sup>†</sup>**

**G.E. BROWN\***

*Nordita, Blegdamsvej 17, DK-2100 Copenhagen Ø, Denmark*

**H.A. BETHE\*\***

*Laboratory of Nuclear Studies, Cornell University, Ithaca, New York 14850, USA*

**GORDON BAYM\*\*\***

*Loomis Laboratory of Physics, University of Illinois, Urbana, Illinois 61801, USA*

Received 12 May 1981

## **HYDRODYNAMICS OF ULTRA-RELATIVISTIC HEAVY ION COLLISIONS**

**GORDON BAYM and BENGT L. FRIMAN\***

*Department of Physics, University of Illinois at Urbana-Champaign, Urbana, Illinois 61801, USA*

**J.-P. BLAIZOT and M. SOYEUR**

*Centre d'Etudes Nucleaires de Saclay, Service de Physique Theorique, F-91191 Gif-sur-Yvette Cedex,  
France*

and

**W. CZYZ**

*Institute of Nuclear Physics, 31-342 Krakow, Poland*

Received 17 March 1983

# Some of his groundbreaking papers

## Ground-State Properties of Magnetically Trapped Bose-Condensed Rubidium Gas

Gordon Baym<sup>1</sup> and C. J. Pethick<sup>1,2,3</sup>

<sup>1</sup>*Department of Physics, University of Illinois at Urbana-Champaign, 1110 W. Green Street, Urbana, Illinois 61801*

<sup>2</sup>*Nordita, Blegdamsvej 17, DK-2100 Copenhagen Ø, Denmark*

<sup>3</sup>*Institute for Nuclear Theory, University of Washington, Box 351550, Seattle, Washington 98195*

(Received 11 August 1995; revised manuscript received 3 November 1995)

## Superfluid phases of quark matter: Ginzburg-Landau theory and color neutrality

Kei Iida

*Department of Physics, University of Illinois at Urbana-Champaign, 1110 West Green Street, Urbana, Illinois 61801-3080*

*and Department of Physics, University of Tokyo, 7-3-1 Hongo, Bunkyo, Tokyo 113-0033, Japan*

Gordon Baym

*Department of Physics, University of Illinois at Urbana-Champaign, 1110 West Green Street, Urbana, Illinois 61801-3080*

(Received 26 October 2000; published 13 March 2001)

## New Critical Point Induced By the Axial Anomaly in Dense QCD

Tetsuo Hatsuda,<sup>1</sup> Motoi Tachibana,<sup>2</sup> Naoki Yamamoto,<sup>1</sup> and Gordon Baym<sup>3</sup>

<sup>1</sup>*Department of Physics, University of Tokyo, Japan*

<sup>2</sup>*Department of Physics, Saga University, Saga 840-8502, Japan*

<sup>3</sup>*Department of Physics, University of Illinois, 1110 W. Green St., Urbana, Illinois 61801, USA*

(Received 10 May 2006; published 18 September 2006)

## Astrophysical Measurement of the Equation of State of Neutron Star Matter

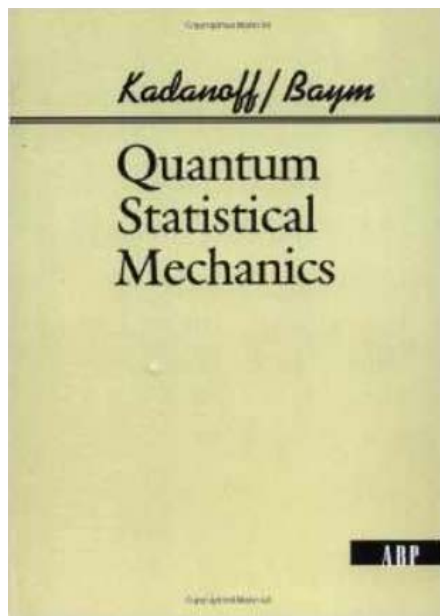
Feryal Özel,<sup>1</sup> Gordon Baym,<sup>2</sup> and Tolga Güver<sup>1</sup>

<sup>1</sup>*University of Arizona, Department of Astronomy and Steward Observatory, 933 N. Cherry Ave., Tucson, AZ 85721*

<sup>2</sup>*Department of Physics, University of Illinois, 1110 W. Green St., Urbana, IL 61801*



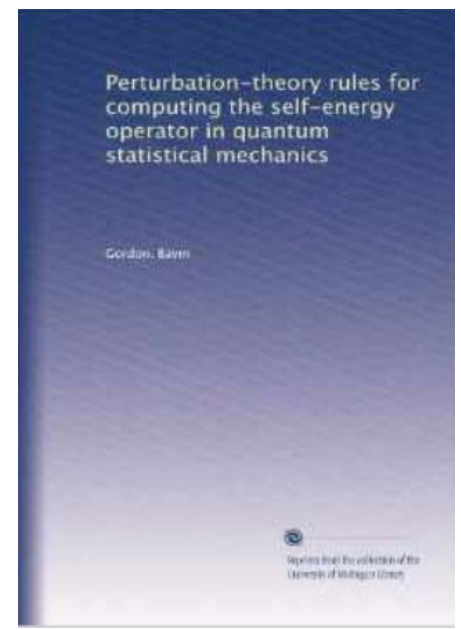
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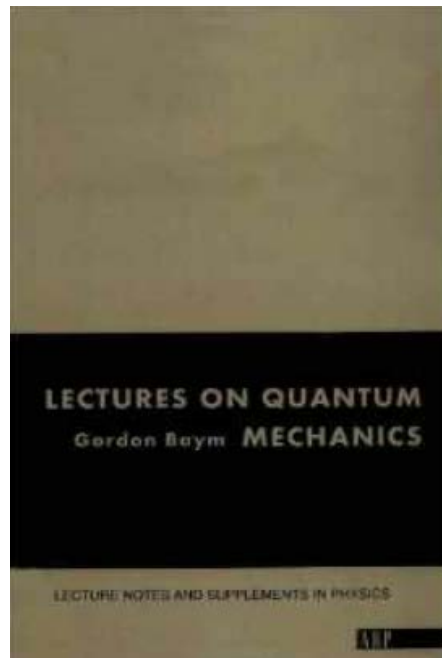
1962



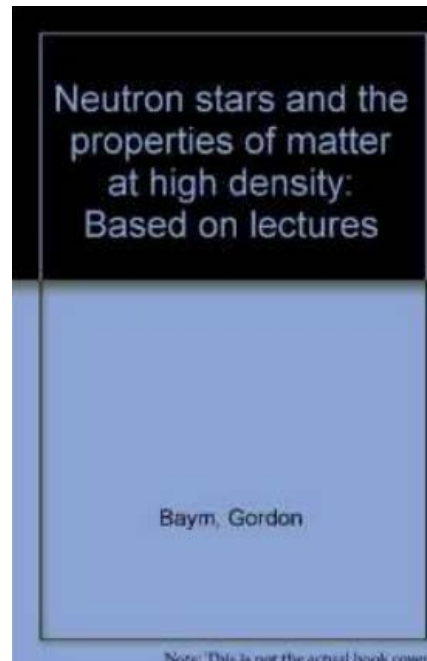
2011



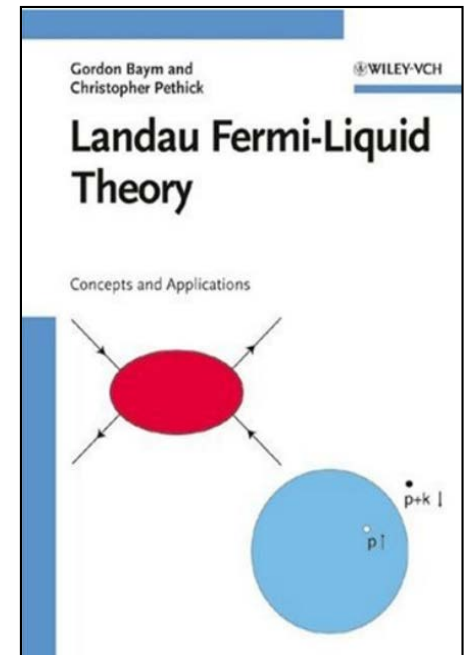
1962



1969



1977



1991