Marshall Rosenbluth & Roald Sagdeev In Trieste

The Birth of Modern Space Plasma Physics

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University of California, San Diego
February 7, 2013

Eniwetok

10/31/52

UN, New York

12/8/53

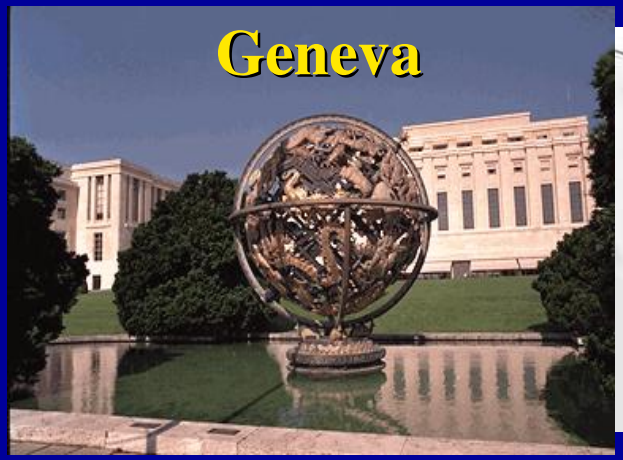
Vienna

IAEA

International Atomic Energy Agency

7/29/57

Geneva



9/1-13/1958

Sputnik

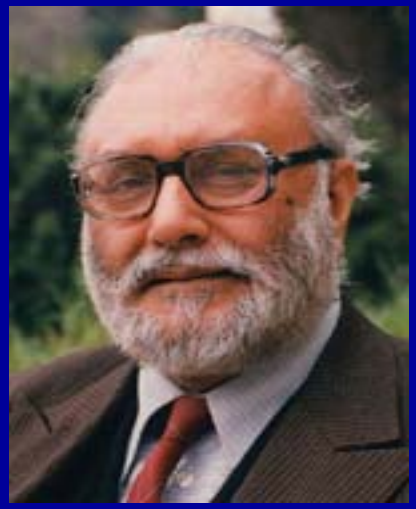
10/4/57

Salzburg

9/4-9/1961

The International Centre for Theoretical Physics 1964

Founded by Abdus Salam
Rosenbluth chairs first conference
Rosenbluth & Sagdeev plan
year-long fusion workshop



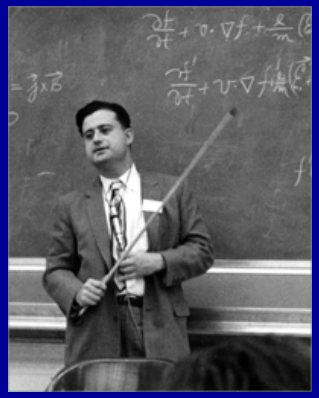
Opening Ceremony

Jolly Hotel

1965's Plasma Galaxy

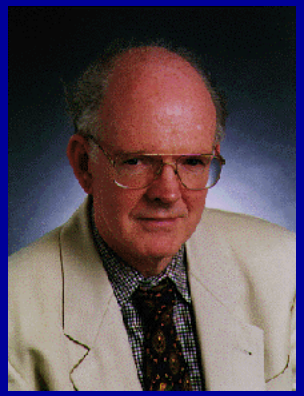
Stars orbiting superstars

Roald



Marshall

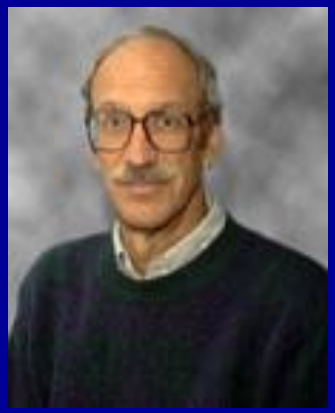
Bruno



Wendell

Herb

Ravi



Roscoe

Rene

Guy

Charlie

Alec

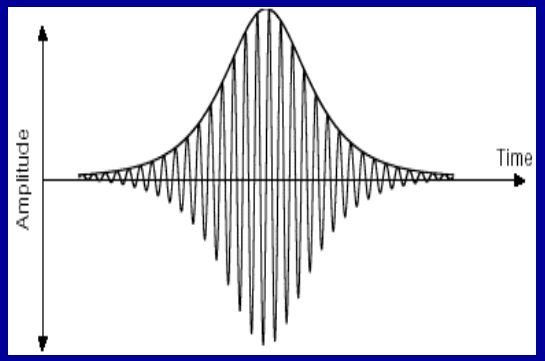
Tom

6, Piazza Oberdan

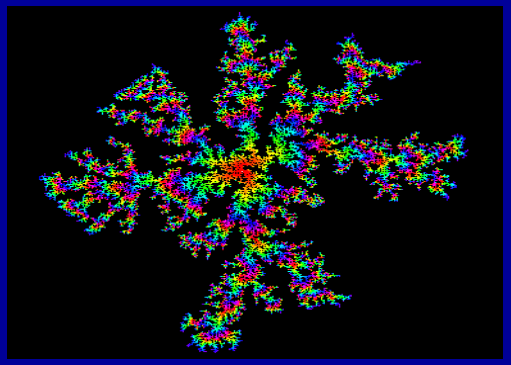
1965

110 plasma papers were written in 9 months in this old building….

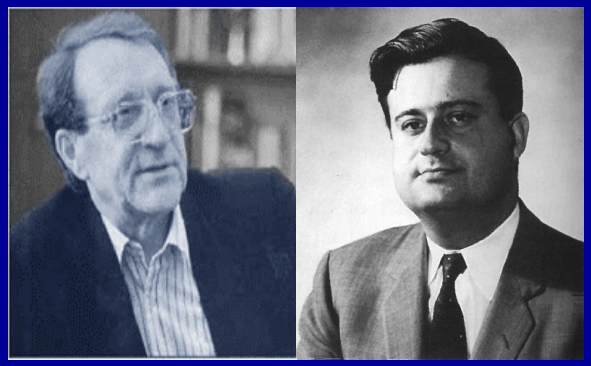
Creative Tension in Trieste

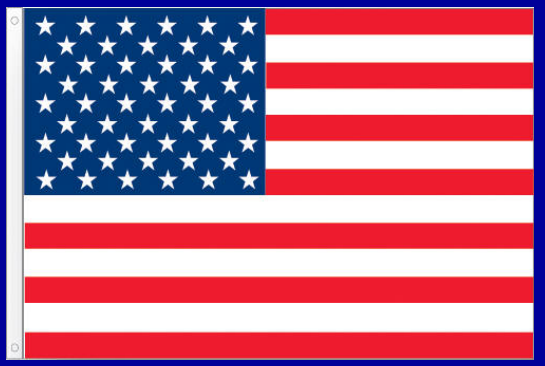


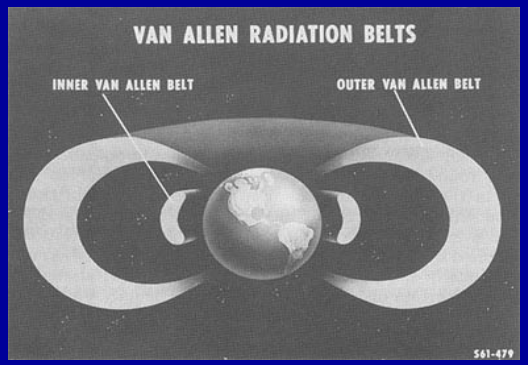
Nonlinear Fluid Mechanics



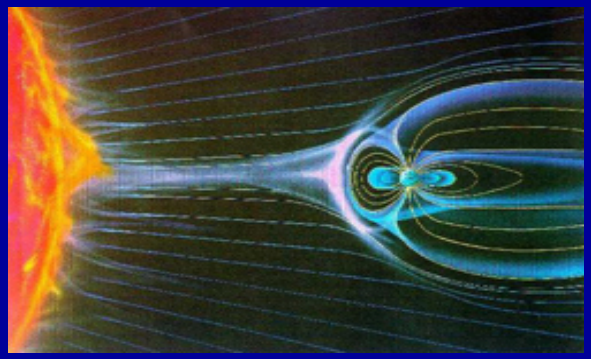
Statistical Mechanics



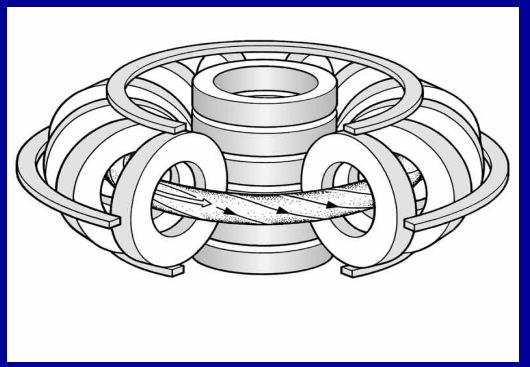




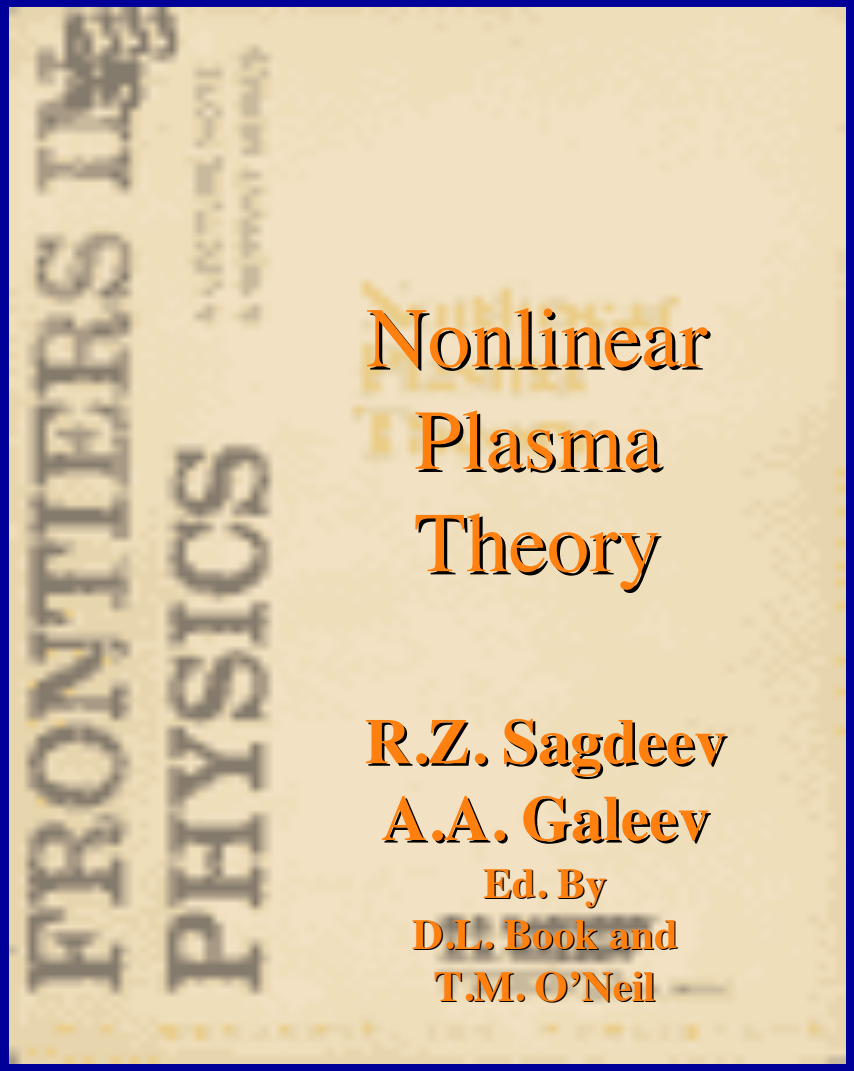
Space Plasma



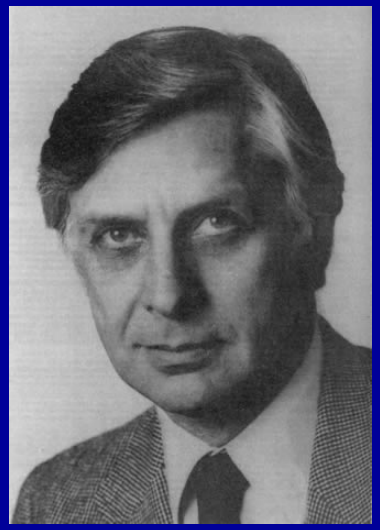
Collisionless Shocks



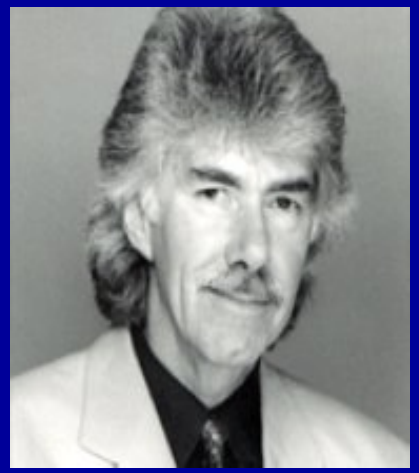
Fusion Plasma



The people who listened to these lectures also became familiar with the most recent observations of space plasmas



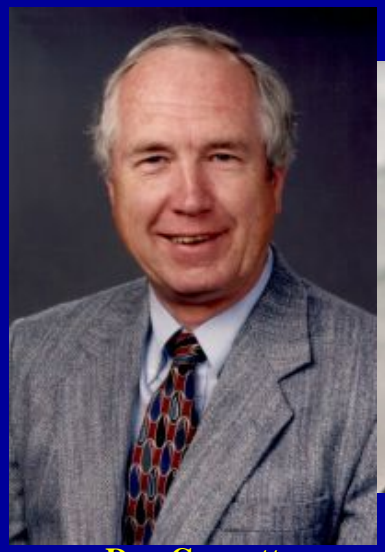
Ian Axford



Richard Thorne

AVCO-Everett Research Laboratory, 1961-66

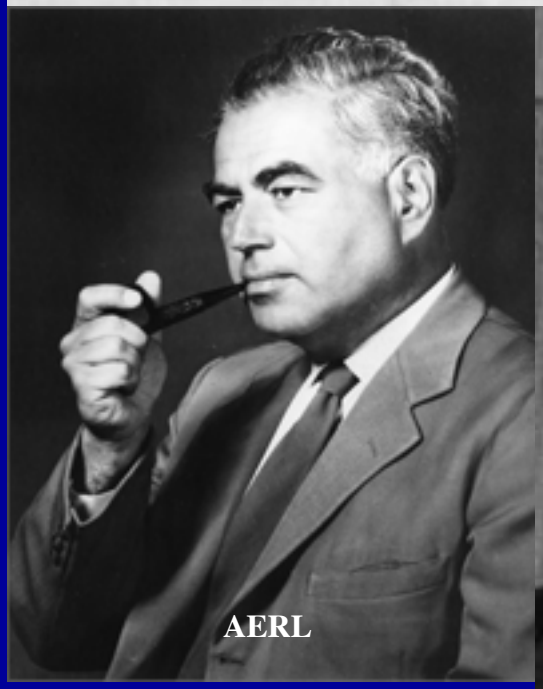
Harry Petschek & Charlie Kennel



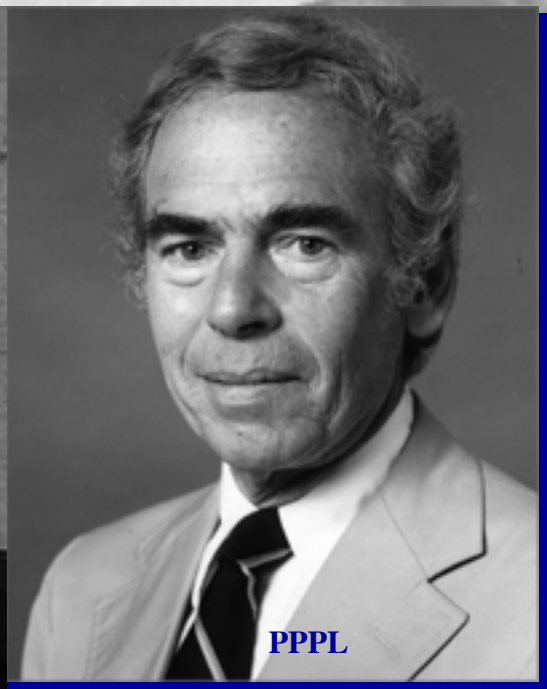
Don Gurnett

George Siscoe

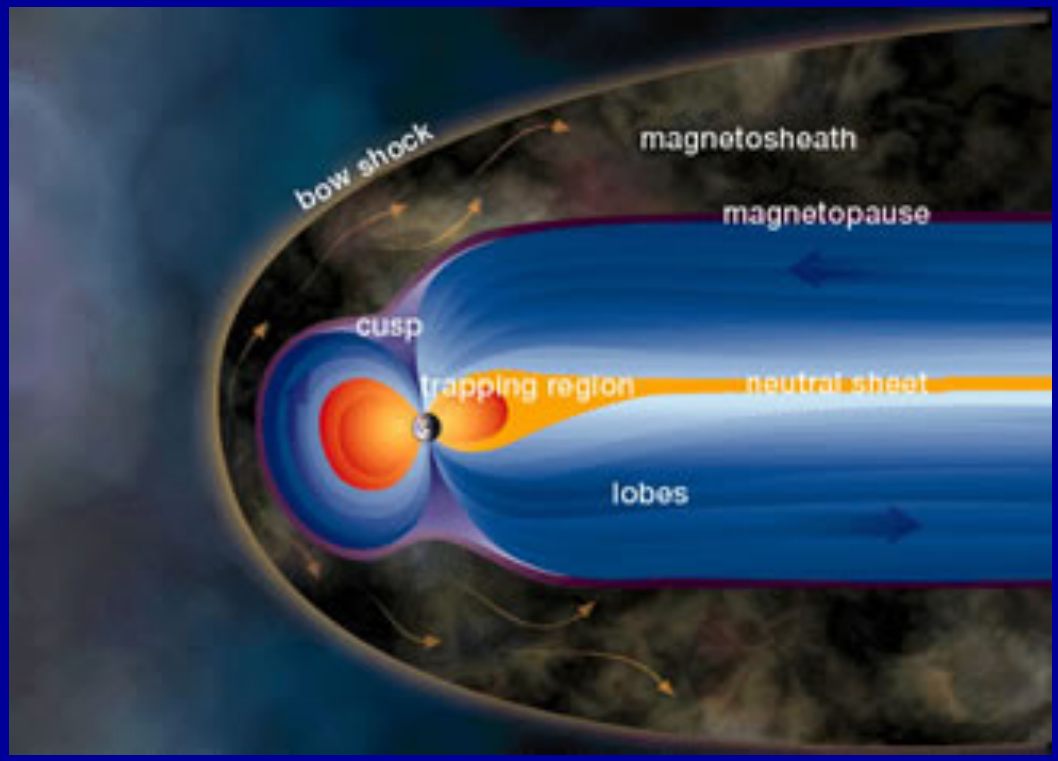
How I was invited to Trieste on one of the most dangerous flights I ever took



AERL



PPPL



EM & ES Loss-Cone Instabilities
Velocity Space Diffusion in a Magnetic Field
Van Allen Belt Pitch Angle Scattering
Solitons
Quasi-parallel and Quasi-perpendicular Collisionless Shocks
Collisionless Tearing Mode and Reconnection

The experimentalists soon knew what to look for

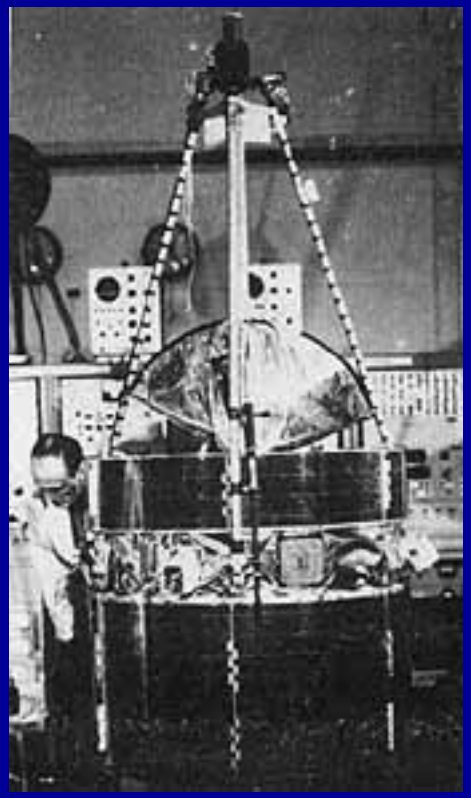
Turbulent, unconfined plasmas

téléphoto UPI

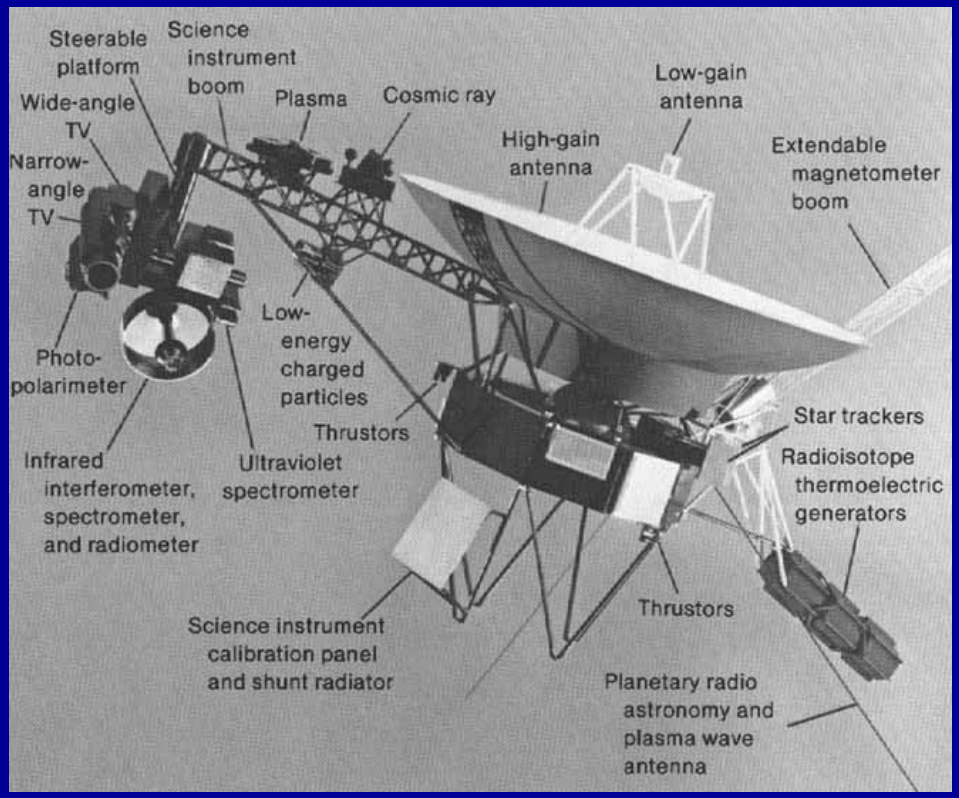
Mise sur orbite d'"OGO-5".

Départ à Cap Kennedy de la puissante fusée "Atlas-Agena" qui a mis sur orbite le satellite "OGO-5" (Orbiting Geophysical Observatory). Ce laboratoire spatial, qui pèse 1,347 livres, a pour mission principale de sonder les mystères des radiations croissantes du Soleil, mais ses nombreuses missions de recherches portent également sur les aurores boréales et sur le champ magnétique qui entoure la Terre.

OGO-5, 1968



Pioneer 8, 1974



Voyagers I & II, 1980s

Trieste Alumni Became Leaders of National Space Organizations

Sagdeev Galeev

CENTRE NATIONAL D'ÉTUDES SPATIALES

Pellat

Kennel

Marshall and Roald were part of an international fraternity dedicated to Arms Control

All work and no play made dull boys

A deep dive into physics and life…