

THE EDMUND R. MICHALIK  
DISTINGUISHED LECTURE  
IN THE MATHEMATICAL SCIENCES  
UNIVERSITY OF PITTSBURGH  
FRIDAY, APRIL 6, 2007

AUDITORIUM 125  
FRICK FINE ARTS BLDG.

4:30 - 5:30 P.M.

**SPEAKER: DR. CATHLEEN MORAWETZ**

**COURANT INSTITUTE OF MATHEMATICAL SCIENCES**

**NEW YORK UNIVERSITY**

**TITLE: COLLISIONLESS SHOCKS IN SPACE**

**ABSTRACT:** In the last century plasma physics led to the general theory of magnetohydrodynamics. But the meaning of shocks when the mean free path of the particles is very large was left open. Such shocks have been studied twice. First in the 1950s they were proposed as a mechanism for heating a controlled nuclear fusion machine for creating energy. Now such a shock has been observed by Voyager 2 in its travels through space. The lecture will describe how collisionless shocks occur in the solar system and why its structure is a puzzle.

**Reception immediately following the lecture**

**Frick Fine Arts Cloisters**