

SCIENCE SEMINAR

FRIDAY, OCTOBER 24
KNOTT HALL B01
3PM

WHY ARE WE STILL TESTING NEWTON'S INVERSE-SQUARE LAW?

DR. ERIC ADELBERGER
PROFESSOR OF PHYSICS
UNIVERSITY OF WASHINGTON

TODAY, MORE THAN THREE CENTURIES AFTER NEWTON, GRAVITY IS AGAIN ON THE CENTER STAGE OF FUNDAMENTAL PHYSICS RESEARCH. WHY IS THIS? WHY ARE PHYSICISTS SO INTERESTED IN TESTING THE GRAVITATIONAL INVERSE-SQUARE LAW AT LENGTH SCALES LESS THAN THE DIAMETER OF A HUMAN HAIR, AS WELL AS AT ASTRONOMICAL SCALES? IN BRIEF, MODERN IDEAS ABOUT UNIFYING GRAVITY WITH THE THREE OTHER FUNDAMENTAL FORCES IN NATURE, AND THE UNEXPECTED DISCOVERY OF "DARK ENERGY", HAVE LED TO MANY SPECULATIONS ABOUT LARGE "EXTRA" DIMENSIONS AND OTHER PHENOMENA THAT WOULD APPEAR AS VIOLATIONS OF NEWTON'S FAMOUS INVERSE-SQUARE LAW. THIS TALK WILL REVIEW THE MOTIVATIONS FOR TESTING THIS LAW AND THE REMARKABLY SENSITIVE INSTRUMENTS THAT EXPERIMENTERS HAVE DEVELOPED TO PROBE THE WEAKEST OF NATURE'S FORCES.

REFRESHMENTS WILL BE SERVED