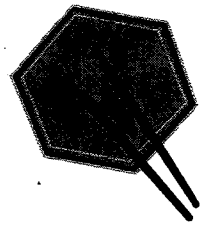
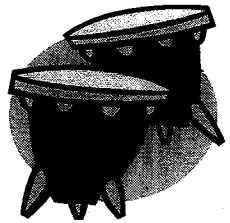
Can You Hear The Shape of a Drum?

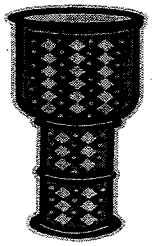
Prof. Carolyn Gordon, Dartmouth University



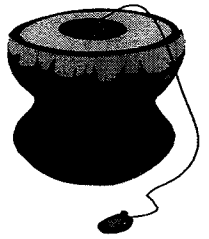


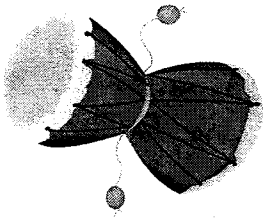
Wednesday, April 2nd 11:00 A.M.

Mathematics Building, Room 3206



In spectroscopy, one attempts to recover the shape or chemical composition of an object from the characteristics frequencies of sound or light emitted. Marc Kac's question "Can one hear the shape of a drum?" asks whether two membranes (drumheads) which vibrate at the same characteristic frequencies must have the same shape. We will answer Kac's question negatively by constructing a pair of exotic shaped sound alike drums (joint work with Professors D. Webb and S. Wolpert). We will also listen to a computer simulation, produced by Dennis DeTurck, of the sounds of these exotic drums.





Prof. Gordon is the author of some fifty research papers in mathematics. She is a leading expert in the field of spectrual geometry and a well known expositor. Prof. Gordon is also the President of AWM, the Association for Women in Mathematics, which has its headquarters here at UMCP. She will have a pizza lunch after her talk with women students in mathematics. If you are interested in this lunch, please email Kim Ozga at ozga@math.umd.edu.