Meeting: 1003, Atlanta, Georgia, SS 21A, AMS Special Session on Mathematics and Mathematics Education in Fiber Arts

1003-00-1284   **Sarah-Marie Belcastro*** (`smbelcas@cs.xu.edu`), Department of Mathematics and CS, Xavier University, Cincinnati, OH 45207. *An Overview of Mathematics in Fiber Arts, with an Attempt to Answer an Age-Old Question.*

The mathematics which arises in fiber arts such as knitting, crocheting, tatting, and quilting includes topology, graph theory, number theory and algebra. This session brings together mathematicians to present a wide variety of mathematics research and work in mathematics education related to the fiber arts. We begin by giving an overview of basic mathematical questions in this area, including:

- What sorts of mathematical objects can be constructed using a particular type of fiber art?
- What sorts of mathematical concepts can be illustrated using a particular type of fiber art?
- What intrinsic mathematics is present in a given fiber art?
- What problems arise in fiber arts which can be answered using mathematics?

Within the above themes, we give examples of work that has been done and issues still to be investigated. This is followed by an attempt to mathematically answer one such question using very basic combinatorics, observations of symmetry, and brute force:

- Of the different knit stitches, why did Western culture settle on the stitch now considered traditional?

...and also followed, of course, by the rest of the talks. (Received October 04, 2004)