Making Mathematical Posters

Ulrich Hermisson and Robert V. Moody

Dept. of Mathematical and Statistical Sciences
University of Alberta, Edmonton, Alberta T6G 2G1, Canada
email: rmoody@uvic.ca

Abstract

We describe an undergraduate student project of making large mathematical posters, in LaTeX, for decorating mathematics department walls and lounges. A LaTeX style and a sample poster is included on the accompanying CD and as well a highly scaled down version of the same poster in included in this paper.

Travelling across southern India, one of us [RM] was fortunate enough to be invited to visit the famous temple city of Madurai and the Department of Mathematics of its Madurai Kamaraj University. One particularly nice feature of the Department is the set of posters that decorates its walls. Feeling that every mathematics student should be aware of the great problems and ideas in mathematics, the faculty had involved students in creating posters which introduced these as well as the history and personalities around them. Thus there were posters on the Fermat theorem, the Poincar\\'e conjecture, the Riemann hypothesis, and so on. These were all done by the students, and they were all done by hand.

What a wonderful idea! The students who were directly involved in these projects got totally involved and inspired by rooting out and compiling the materials for the posters, the results are visually and intellectually interesting, and of course, subsequent students like to look at them, and in doing so absorb some of our great common mathematical culture and heritage.

Returning to the University of Alberta we thought to embark upon such a project here, but with one change. We would produce the posters in LaTeX which, though losing some of the charm of hand-made posters, would have the advantage of easier graphics, reproducibility, and a very professional appearance.

With the hard work of two summer students (Steven Pope and Sam Hillier) we have produced five posters. The first three were on these same three famous problems of mathematics just mentioned, but the last two moved more towards discussing some special areas of mathematics: one on Compact Lie Groups and one on The Halting Problem. Each poster is 30 inches wide and between 5 and 6 feet in length. They hang now, attractively framed, in the Department of Mathematical and Statistical Sciences here where they get constant attention and comment. A small representation of the Turing poster appears here: a full colour rendition may be found on the Renaissance Banff CD.

The task of creating a poster involves quite a number of skills: researching the subject or problem of the poster, learning about the mathematics and personalities involved, assembling this information and suitable graphic images in a coherent way which is informative but not overly technical, determining the layout and colour schemes, checking for accuracy, and then finally setting it into LaTeX.

We found that it was the last step that caused the most problems. Of course it is a very good idea for undergraduate mathematics students to be learning LaTeX. Although it is a bit of a learning curve, it is something that is necessary for future mathematicians to do anyway. But producing posters brings special problems. Very large fonts, lots of boxes, graphic elements, multi-column formatting, DVI viewers that do not live up to ``what you see is what you get'' on large files (most of them do not), and the high cost of trial and error printing, all conspire to make the final part of the process an exercise in patience, even if one already is familiar with LaTeX. It can be very discouraging for those just learning it. It is definitely best to have at least one computer-savvy person on the project!

Still, the potential here for exploring mathematics and making it available in a visually attractive way that can decorate the otherwise boring walls of mathematics departments and institutes is endless. With the hope of encouraging others to continue the process, we have produced here a basic schematic version of the LaTeX code that can be used to produce a poster. A copy of this can be downloaded from

www.math.ualberta.ca/~rvmoody/rvm/

No doubt it will need some tweaking in any particular case, but this should be a sound basis on which to begin.

One other thing, production of more than a handful of posters or putting them up for sale would require obtaining suitable release for any images involved. We have not done that with our posters, which is why we have only made a few copies of each.