

MANY CHEERFUL FACTS

presents

Why ask for associativity when you can have the alternative: The Octonions.

a talk by Chris Pries

1:10 pm - 2:00 on Wednesday, September 21th, in room
1015.

Few can doubt that the real and complex numbers are important in mathematics, however these are just two of the real division algebras, i.e. vector spaces with a compatible multiplication. In this talk we will focus on some other, neglected real division algebras. If you throw in a norm then an amazing (and cheerful) thing happens: There are only four: The reals, the complex numbers, the quaternions, and the octonions! I will prove this and hopefully show how wonderful and useful these (alternative) algebras can be.

o Check out the MCF website: <http://math.berkeley.edu/~brownda/cheers/>

*I am the very model of a modern Major General,
I've information vegetable, animal, and mineral,
I know the kings of England, and I quote the fights historical
From Marathon to Waterloo, in order categorical;
I'm very well acquainted, too, with matters mathematical,
I understand equations, both the simple and quadratical,
About binomial theorem I'm teeming with a lot o' news,
With many cheerful facts about the square of the hypotenuse!*

- Gilbert & Sullivan $P \circ P$