

The Math News

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Mathematics and Digital Images

Partial differential equations and fluid dynamics are areas of applied mathematics which are useful not only in digital imaging, but in many areas of science and engineering. At the Naval Academy, partial differential equations are introduced in the core courses on Differential Equations, **SM212** and **SM222**. Engineering applications of partial differential equations are discussed in Engineering Math I, **SM311** and **SM311O** (for oceanography majors). A more advanced course, **SM315**, Introduction to Partial Differential Equations, is also available. Prof. Malek-Madani frequently teaches a special course on the mathematics of fluid flows and has supervised several midshipmen research projects on this subject.

Admiral Crenshaw Visit - 22 October 2002

The Mathematics Department is proud to host a talk by Admiral Lewis W. Crenshaw in the Operations Analysis Seminar, noon, 22 October 2002, Chauvenet 116. A 1974 Academy graduate, Admiral Crenshaw flew combat sorties during Operation Eldorado Canyon (Libya 1986) and Operation Desert Storm (Iraq 1991). More recently, Admiral Crenshaw served as Commander, Carrier Group SIX/Commander, John F. Kennedy Battle Group and Deputy Commander Joint Task Force-Southwest Asia. In June 2001, he assumed duties as Director, Assessment Division (N81) in the Office of the Chief of Naval Operations.

Fields Medal in Mathematics

The highest honor in mathematics, the Fields Medal, is awarded every four years for outstanding mathematical achievement by mathematicians not over the age of forty at the time of the award. This summer, at the International Congress of Mathematicians in Beijing, China, the Fields Medal was awarded to Laurent Lafforgue of the Institut des Hautes Études Scientifiques, France, and Vladimir Voevodsky of the Institute for Advanced Study, Princeton, New Jersey. Lafforgue was honored for his work on the "Langlands Program," relating number theory to other areas of pure mathematics. Voevodsky was recognized for his advanced work in areas of mathematics relating algebra and geometry.

Leap Years Problem

Frank Morgan, a mathematics professor at Williams College, Massachusetts, poses the following problem in "*The Math Chat Book*¹," based on the live call-in TV show he hosted for several years. *Math Chat* also appeared as newspaper and online columns.

If you live for 6000 years, how many days will that be?

Solution to Aquarium Puzzle from Last Issue

The water level rises 1.8 inches after the first cube is added and 2.2 inches after the second.

1. Frank Morgan, *The Math Chat Book*, The Mathematical Association of America, USA, 2000.