

# STEM Society Meeting, March 12, 2013

James Emery

Last Edit: 4/3/2013

## Contents

1	About the STEM Society and the STEM Society Website	1
2	The March Meeting Announcement	2
3	Jim Emery: A Biographical Sketch of Augustin Louis Cauchy	3
4	Jim Emery: An Outline of Complex Analysis and Contour Integration	4
5	Rick Hines: A New Patent on a Device for Correcting a Brain Aneurism	4
6	Maurice Smith: A New Patent on a Portable Mass Spectrometer	5
7	Kent Smith, Bill Reid, Chris Sanderson: Measuring Position, and Atmospheric Data, with Electronic Instruments Attached to a Falcon	5

## 1 About the STEM Society and the STEM Society Website

STEM is an abbreviation for Science, Technology, Engineering and Mathematics. The acronym STEM is commonly associated with K-12 education,

but our use of the term is not restricted to this meaning. There are nearly 100 people on the mailing list, although a much smaller group attends any one meeting. We meet on the second Tuesday of each month at the Trailside Center at 99th and Holmes in Kansas City, Missouri. The meetings are open to all. The start time is 6PM. We make presentations, have discussions, and have demonstration experiments. These relate to Science, the History of Science, Mathematics, Engineering, Philosophy and Technology at all levels. The topics have ranged from a technical discussion of the mathematics of General Relativity to scientific experiments for young students.

The set of meeting notes may be viewed by going down the list of notes appearing on the front page of the site. These notes contains links to documents, which may be viewed or downloaded by clicking the link. Other documents can be reached by clicking the heading "Documents and Downloads" that appears on the left side of the front page. Then click on "documents." The meeting notes may also be viewed in an archive file in the list of documents. Most of the documents are PDF files. They may be viewed or downloaded to the computer by clicking, provided Adobe Reader is present, or another program capable of reading PDF files. There are usually more documents available at the site than are listed under "Documents" because they are not in the documents.htm file.

**The web site is:**

<http://www.stem2.org/>

**Direct to the documents list:**

<http://www.stem2.org/je/documents.htm>

**Direct to the archive file:**

<http://www.stem2.org/je/archive.pdf>

## **2 The March Meeting Announcement**

The March meeting of the STEM Society will take place on the second Tuesday of the month, March 12, 2013, at the Trailside Center at 99th and Holmes in Kansas City, Missouri. The starting time is 6PM.

A List of Possible Topics, among which, a few lucky ones shall be chosen by natural selection:

- (1) Complex Analysis and Contour Integration.
- (2) Function Programming and Number Theory.
- (3) Optimization Theory, Lagrange Multipliers, and the Golden Section Search.
- (4) Electronics and Circuits.
- (5) Machine building projects.
- (6) A Possible Report on a New Patent.
- (7) A Report on the instruments project to make high altitude atmospheric measurements.
- (8) Problems and Solutions, in Mathematics, Physics and Engineering. Bring Your Problems and Solutions.
- (9) Show and Tell: Bring Your Objects, Theories, Experiments, Perpetual Motion Machines, and Baldness Cures.
- (10) Scientific Biographies, Perhaps this Month on Cauchy.
- (11) Impromptu topics and Project Descriptions From the Masses Who Gather for This Amazing Meeting.

**The STEM Society Website:**

<http://www.stem2.org/>

### **3 Jim Emery: A Biographical Sketch of Augustin Louis Cauchy**

Cauchy was born in 1789, almost exactly at the start of the French Revolution. Cauchy was born in August of 1789, which is the reason for his first name. As most people know the Bastille was stormed on July 14, 1789, giving us Bastille Day. Cauchy is responsible for many ideas in mathematics and

mathematical physics. Here is the biographical document that we presented on Cauchy:

<http://www.stem2.org/je/cauchy.pdf>

## **4 Jim Emery: An Outline of Complex Analysis and Contour Integration**

We presented an outline of Complex Analysis, including the Residue Theorem and its use in evaluating real integrals, by doing a complex contour integration. Also there was a brief mention of the use of complex methods in electrical engineering, a topic which we plan to expand upon later.

We went over a part of the following document:

<http://www.stem2.org/je/complex.pdf>

I might mention that the documents on the website, such as this one, are dynamic, always being expanded and refined. The date on a document is sort of a version number.

## **5 Rick Hines: A New Patent on a Device for Correcting a Brain Aneurism**

As many of you know, who have attended these meetings for a while, Rick operated, for several years, out of his house, and out of a Laboratory at the KU Medical Center, a research laboratory developing stents and related devices, for correcting blocked blood vessels. He has several patents on these devices. They are mostly created by electroplating Gold. He did this for several years, using research grants from various sources. A couple of years ago he almost gave up on this work, after money vanished. But recently things are looking up again. Some people in the U. K. have licensed some of his patents, and this is producing income for him.

Just a couple of days before the current meeting he received a patent document from the patent office, for a patent on a device for correcting a brain aneurism. This device is threaded a long way through the body up a

vein into the brain, the surgeon being guided by an imaging device observing the brain. Getting patents is a big struggle and takes a good long time.

For more information on this work and patents you can contact Rick directly.

## **6 Maurice Smith: A New Patent on a Portable Mass Spectrometer**

Maurice Smith also just obtained a new patent on a portable mass spectrometer. He did this work while at Honeywell. He was going to make a presentation to us, however, due to ill health he was not able to make the meeting.

## **7 Kent Smith, Bill Reid, Chris Sanderson: Measuring Position, and Atmospheric Data, with Electronic Instruments Attached to a Falcon**

These guys demonstrated some of their equipment and discussed their future plans for the project. They have obtained some money for the project.

Kent is also interested in using the project for science education of children.