

CCSU
DEPARTMENT OF MATHEMATICAL SCIENCES
COLLOQUIUM

Friday, September 29
3:15 – 4:15 PM
Maria Sanford, Room 101

THE TWIN PARADOX
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Abstract: Before Albert Einstein's "Special Relativity" we thought that space and time were independent of each other – that time is absolute, and everyone could agree on when an event took place, once they had synchronized their watches, and once they took into account the time it took for the light from the event to reach each observer. However, this was incompatible with the fact that speed of light (in empty space) was always measured to be 3×10^8 m/s regardless of the motion of the source or the motion of the observer.

Einstein's solution, the "Theory of Special Relativity" shows us that an observer moving at constant velocity can not only disagree about the distance between two events but can also disagree about the time between the events. This phenomenon is called "time dilation" and leads to an apparent prediction called "the twin paradox" where one of a pair of twins goes on a long journey at high speed; and after returning home, each twin finds the other to be much younger than himself.

We go over the complete picture of a velocity transformation, which might also be called a "hyperbolic rotation" or a "pseudo-rotation" and point out why the "paradox" is not a paradox, after all.

To join us online use the following link: <https://ccsu.webex.com/meet/gotchev>

For further information: gotchevi@ccsu.edu; 860-832-2839;

<http://mathcolloquium.sites.ccsu.edu/>