

**CSI Mathematics**  
**Simons Undergraduate Lecture**

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ON BUTTONS AND BALLS THAT CANNOT RUN AWAY  
(*Convex sets of constant width*)

1P-119 Lecture Hall  
Tuesday September 10th, 2024  
2:30 – 4:20pm



When is a pipe perfectly circular? When its cross section has constant diameter no matter from which direction I measure it with a caliper?

The answer is: NO! There are other two- (and even three-dimensional) SETS THAT HAVE CONSTANT WIDTH.

In my talk I shall survey some surprising geometrical facts and some of the history of their discovery. You will understand why some British coins have corners and what went wrong with a booster rocket at the 1986 disaster of the space shuttle Challenger.



I shall also discuss a plausible conjecture on such sets that has been open for over a century now.