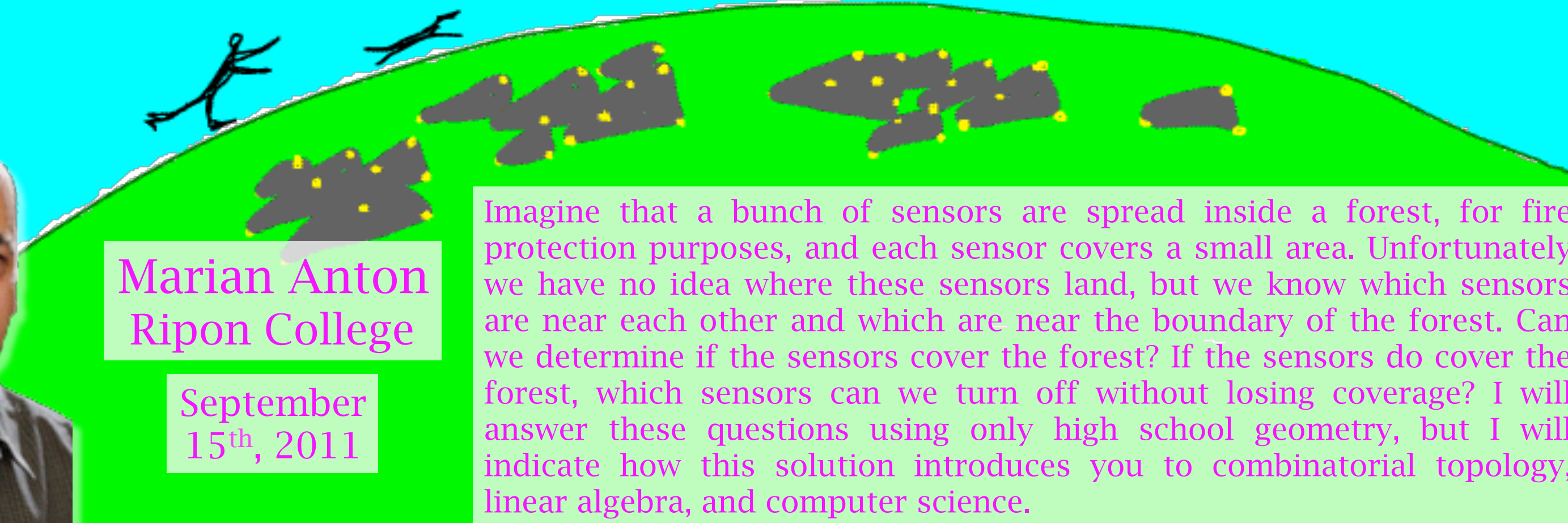


Coverage in Sensor Networks from an Elementary Viewpoint



Marian Anton
Ripon College

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Imagine that a bunch of sensors are spread inside a forest, for fire protection purposes, and each sensor covers a small area. Unfortunately we have no idea where these sensors land, but we know which sensors are near each other and which are near the boundary of the forest. Can we determine if the sensors cover the forest? If the sensors do cover the forest, which sensors can we turn off without losing coverage? I will answer these questions using only high school geometry, but I will indicate how this solution introduces you to combinatorial topology, linear algebra, and computer science.