Mathematical Teleportation:

Is \( \frac{1}{\sqrt{5}} \left[ \left( \frac{1+\sqrt{5}}{2} \right)^{100} - \left( \frac{1-\sqrt{5}}{2} \right)^{100} \right] \) an integer?

What would Leonardo think?

Professor Iraj Kalantari
WIU Department of Mathematics

Abstract: In mathematics and sciences, we may encounter a useful sequence whose 100th (or much later) term we need to know. Often, the sequence is calculable one-after-another, which can lead to a possibly laborious voyage. Is there a way to `teleport'? To calculate the 100th term of a sequence without calculating the first 99 terms? In this talk, we explore a wonderful mathematical method for doing so that we don’t normally meet in our existing math courses.