

Prime is a quantity.

Unique, a product unachievable by any two other numbers. 2, 3, 5 ...

Prime is a quality.

Excellent, of the highest caliber.
Outstanding, Choice, Top-Notch...

In both quantity and quality, this column features Prime Examples of what makes us Florida Tech.

PRIME EXAMPLES *of*

MOMENTUM

Momentum is the quantity of motion. Fast or slow. Forward or back. For purpose. For fun.

Momentum is about movement, progress and the impetus that sparks it. It is the strength gained by motion.

Literally, a ball picking up speed as it rolls down a hill; figuratively, a project taking shape, a dream becoming reality, an idea snowballing, taking off.

Momentum stimulates growth, power, evolution. Once it builds, there's no telling how far it may go.

Here are a few prime examples.

5 STUDENT ORGS WITH ENERGY



1. **Panther Spirit Squad**
2. **Society of Physics Students**
3. **Rocketry Club**
4. **Flight Team**
5. **FITSEC** (see story on page 22)

2

RESEARCH AREAS UNDERWAY

Behavioral Momentum

In behavior analysis, “behavioral momentum” describes the relation between persistence of behavior and rate of reward, most often in the context of increasing cooperation or compliance among young children. Essentially, first assigning a task the child is more likely to complete—high-probability instruction, e.g., “Give me a high-five!”—and rewarding compliance builds momentum toward obedience that can be applied to a task the child doesn’t want to complete—low-probability instruction, e.g., “Pick up your toys.”



“Florida Tech researchers have examined some of the features of this sequence, including the optimal number of high-probability instructions and the amount of time between the delivery of each instruction.”

—David Wilder, head, School of Behavior Analysis

Orbital Angular Momentum

Optical fiber communication is everywhere. Even in the case of most cellphone communications, photons, or “laser light,” are launched into a fiber located at the base of Cell Tower A. It then travels through the length of the fiber to reach the base of Cell Tower B with negligible transmission losses, making the optical fiber an ideal data transmission medium. However, with rapidly increasing demand—likely 10,000 times more data being transmitted over the next 20 years—we must either lay down new fibers—no easy feat—or increase the data capacity of existing fibers. So, throughout his years of research, professor Syed Murshid has found a way to take better advantage of existing space in the fibers by launching photons not in the traditional zigzag path, but on a helical path that then creates momentum—more specifically, orbital angular momentum—inside and around the entire length of the fiber. Combined with spatial multiplexing, this could lead to new means of communication, including quantum communication.”

“It can increase the data capacity at least by twofold, and then, combined with spatial multiplexing, it can increase the data capacity by 10, 15, 20 times.”

—Syed Murshid, professor, computer engineering and sciences



3

ALUMNI PICKING UP SPEED

(in more ways than one)

ZACH COSTELLO '16 started as a racing spectator, and he’s been gaining momentum ever since. In 2015, he became a member of the first cohort of student interns at Larsen Motorsports and then spent two years as crew chief of the Florida Tech team. Six years after joining LMS, Costello found himself behind the wheel, ready to zoom down the course at 200-plus mph as the team’s backup driver. He now has seven races under his belt and a new, prestigious role: primary driver, driving the Gen 6 Florida Tech dragster that he had helped assemble.



After a series of personal struggles that culminated in her motorcycle catching fire, **EVIE MINET '22** decided to rebuild it from the wreckage, and further, convert it to electric. Countless hours of research, tinkering, trial and error, extra classes and consulting with faculty, peers and L3Harris Student Design Center staff later, Minet completed her fully functioning electric motorcycle. Today, she is in the early stages of launching Phoenix Motors, an electric vehicle conversion business offering do-it-yourself conversion kits and drop-off or hands-on conversion services.

JEREMY CASPERSON '10 is director of civil engineering for one of the organizations most well-known for speed in America: NASCAR. Read about his experience retrofitting a Los Angeles football stadium for the Busch Light Clash at the Coliseum in February on page 39.