

Quantum Cryptography!

Physics II: Modern Physics

College of the Atlantic

1. Anastajia and Beowulf are using an EPR experiment to distribute a key. Anastajia observes:

$$A1 B1 B0 A0 C0 \quad B0 A1 B0 B1 C1 \quad A1 A0 C1 C0 B0 \quad C1 B1 A0 A0 A1 \quad (1)$$

While Beowulf observes:

$$B0 B0 C0 C1 A1 \quad B1 C0 B1 B0 A0 \quad C1 B1 C0 B0 C0 \quad A1 B0 A1 C0 C0 \quad (2)$$

What key would Anastajia and Beowulf end up using? Was Yves listening in? How can you tell?

2. Anastajia and Beowulf are using an EPR experiment to distribute a key. Anastajia observes:

$$B1 C1 C0 A0 B0 \quad A0 B0 B0 C1 C1 \quad B1 A0 A1 C0 B0 \quad C1 A0 A0 B0 A0 \quad (3)$$

While Beowulf observes:

$$B0 B0 C0 C1 A1 \quad B1 C0 B1 B0 A0 \quad C0 B1 C1 C0 B \quad A1 B0 A1 C0 C0 \quad (4)$$

What key would Anastajia and Beowulf end up using? Was Yves listening in? How can you tell?