ABSTRACT: Secure computation is a subfield of cryptography with the goal of creating methods for parties to jointly compute a function over their inputs without revealing the inputs. For example, Alice might maintain an array of data, while Bob wants to retrieve a certain element of the array. Alice doesn't want to reveal all of the data to Bob, while Bob doesn't want to tell Alice which element of the array he is interested in. Holomorphic encryption is a form of encryption that allows computations to be performed on a ciphertext without knowing the plaintext. In this talk, we present a holomorphic encryption scheme that allows messages (plaintext, represented as integers) to be added together, and to be multiplied once. This scheme, created by Boneh, Goh, and Nissun, uses maps between subgroups of supersingular elliptic curves. One application is a method for solving Alice and Bob's information retrieval problem.