

RSA - encryption and decryption

Given $K_p = (e, n)$ and $K_s = (d, n)$

➡ Encryption : $E_{kp}(m) = m^e \bmod n = c$

➡ Decryption : $D_{ks}(c) = c^d \bmod n = m$

➡ **$(m^e)^d \bmod n = (m^d)^e \bmod n = m$**

Other asymmetric cryptography schemes

Diffie-Hellman (precursor)

- ➡ No Authentication but good for key-exchange

El-Gamal

- ➡ Good properties for homomorphic encryption

Elliptic Curve Cryptography (widely used nowadays)

- ➡ Fast and small keys (190 bits equivalent to 1024 bits RSA)