Asymmetric encryption for **confidentiality**

Bob encrypts a message **m** with Alice's public key $\mathbf{Kp}_A$

➡ Nobody can decrypt **m**, except Alice with her private key $\mathbf{Ks}_A$

✓ Confidentiality without the need to exchange a secret key

K_{sA}, K_{pA}

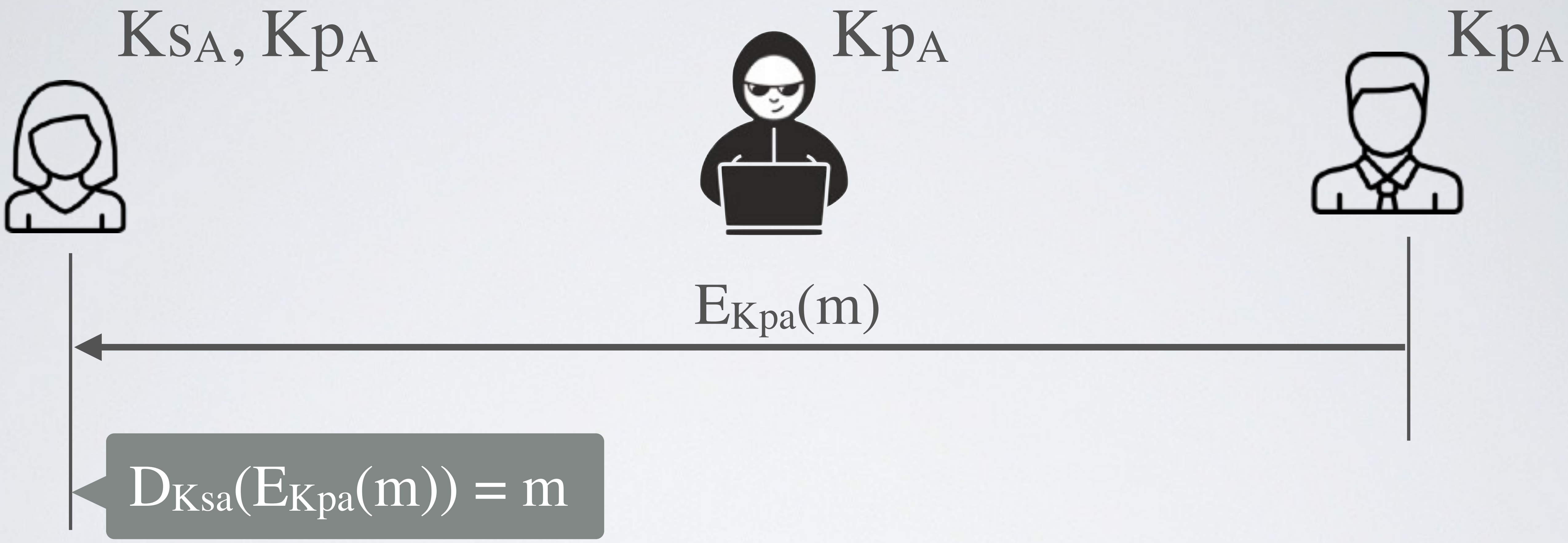
Kp_A

Kp_A

$$\xleftarrow{E_{Kpa}(m)}$$

$$D_{Ksa}(E_{Kpa}(m)) = m$$

Asymmetric encryption for **confidentiality**

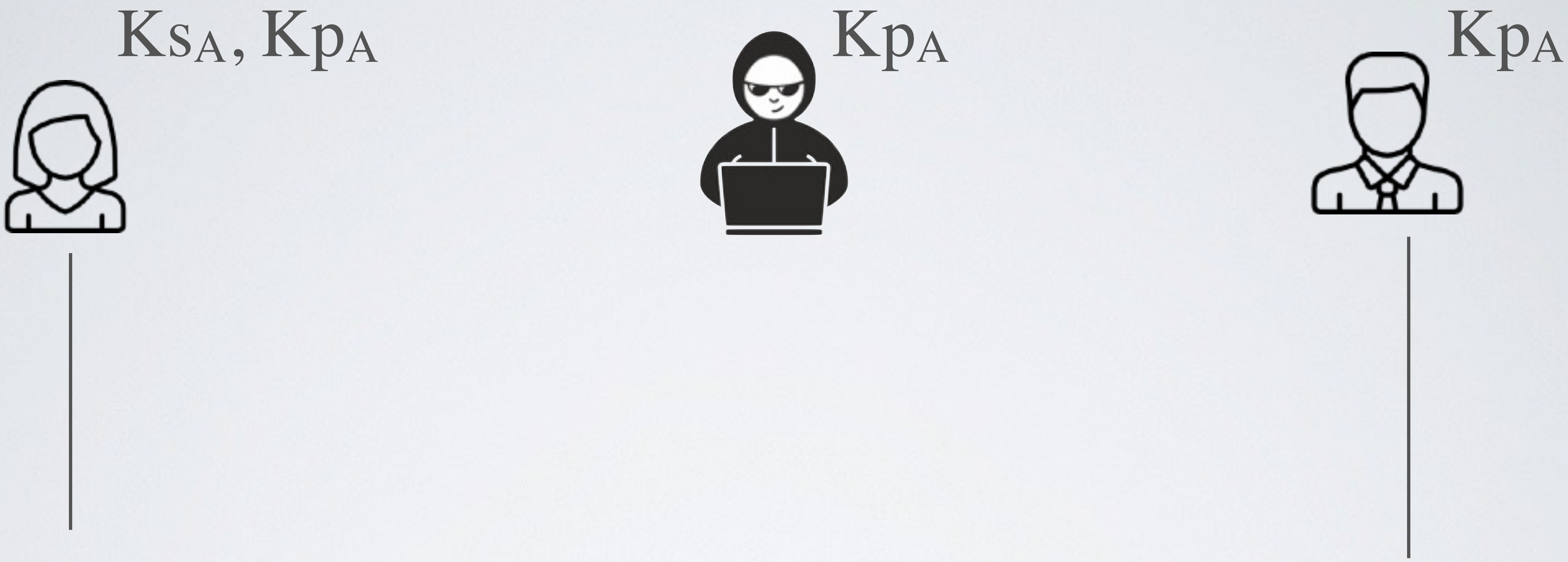


Bob encrypts a message **m** with Alice's public key $\mathbf{Kp_A}$

➡ Nobody can decrypt **m**, except Alice with her private key $\mathbf{Ks_A}$

✓ Confidentiality without the need to exchange a secret key

Asymmetric encryption for **integrity**



Ks_A, Kp_A

Kp_A

Kp_A

Alice encrypts a message $\mathbf{m}$ with her private key $\mathbf{Ks_A}$

➡ Everybody can decrypt $\mathbf{m}$ using Alice's public key $\mathbf{Kp_A}$

✓ Authentication with non-repudiation (a.k.a Digital Signature)