How many atoms of copper are in a pure copper penny that weighs 2.15 g?
(1 amu = 1.6605 10-24 g).

Solution:

1 mole of substance include $6.02 \cdot 10^{23}$ mol^{-1} atoms (Avogadro's constant=$1/1.6605\ 10^{-24}$g). The weight of 1 mole Copper is 63.546 g. Consequently, 63.546 g of Copper include $6.02 \cdot 10^{23}$ atoms and 2.15 g of Copper include:

$$N = \frac{2.15 \cdot 6.02 \cdot 10^{23}}{63.546} = 2.04 \cdot 10^{22}\ \text{atoms}$$

Answer: $N(Cu)=2.04 \cdot 10^{22}$ atoms.