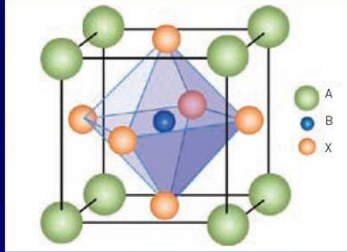
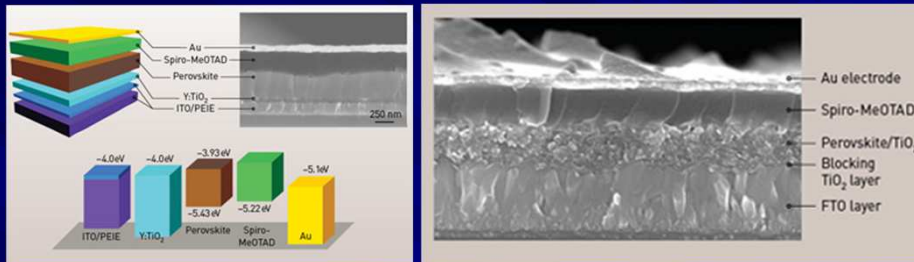


# Perovskite solar cells



- The perovskite structure is commonly understood as that of the mineral  $\text{CaTiO}_3$ .
- More generally, a compound material of stoichiometry  $\text{ABX}_3$ , where  $X$  is an anion and  $A$  and  $B$  are cations of different sizes ( $A$  being larger than  $B$ ).
- Organo-metal halide perovskites,  $B$  is typically a divalent metal ion such as  $\text{Pb}^{(2+)}$ ,  $\text{Sn}^{(2+)}$  and  $\text{Ge}^{(2+)}$  while  $X$  is a halide anion such as  $\text{I}^{(-)}$ ,  $\text{Cl}^{(-)}$  and  $\text{Br}^{(-)}$  and  $A$  is an organic cation such as methylammonium ( $\text{CH}_3\text{NH}_3^{(+)}$ ).

# Perovskite solar cells



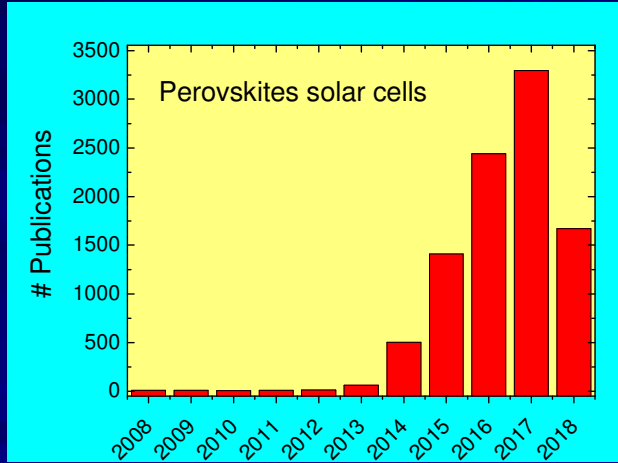
**Key attributes:**

ease of fabrication, strong solar absorption, and low non-radiative carrier recombination rates.

**Negative aspects:**

Pb has been a major constituent of all highly performing perovskite cells to date, raising toxicity issues during device fabrication, deployment, and disposal. They also generally undergo degradation (sometimes quite rapid) on exposure to moisture and UV radiation.

# Number of Publications



# Timeline of energy conversion efficiency

