Kidney Stones and the X-ray

The type of stone decides whether it shows on a plain film and at what urine pH it forms

Ca — **Calcium (oxalate or phosphate)**
radiopaque · the most frequent

Str — **Struvite (magnesium ammonium phosphate)**
radiopaque · urease-positive germs (Proteus) · staghorn stones in alkaline urine

UA — **Uric acid**
radiolucent · acidic urine · dissolves when the urine is alkalinized

Cys — **Cystine**
poorly radiopaque · cystinuria

SIUX — **Radiolucent: Sulfonamides, Indinavir, Urate, Xanthine**
mnemonic "SIUX"

Radiolucent
+ acidic urine: uric acid

Staghorn
+ urinary infection: struvite

Most frequent
Calcium (radiopaque)

Radiolucent stones are not seen on a plain X-ray