

Fundamentals of Imaging

The magic of films

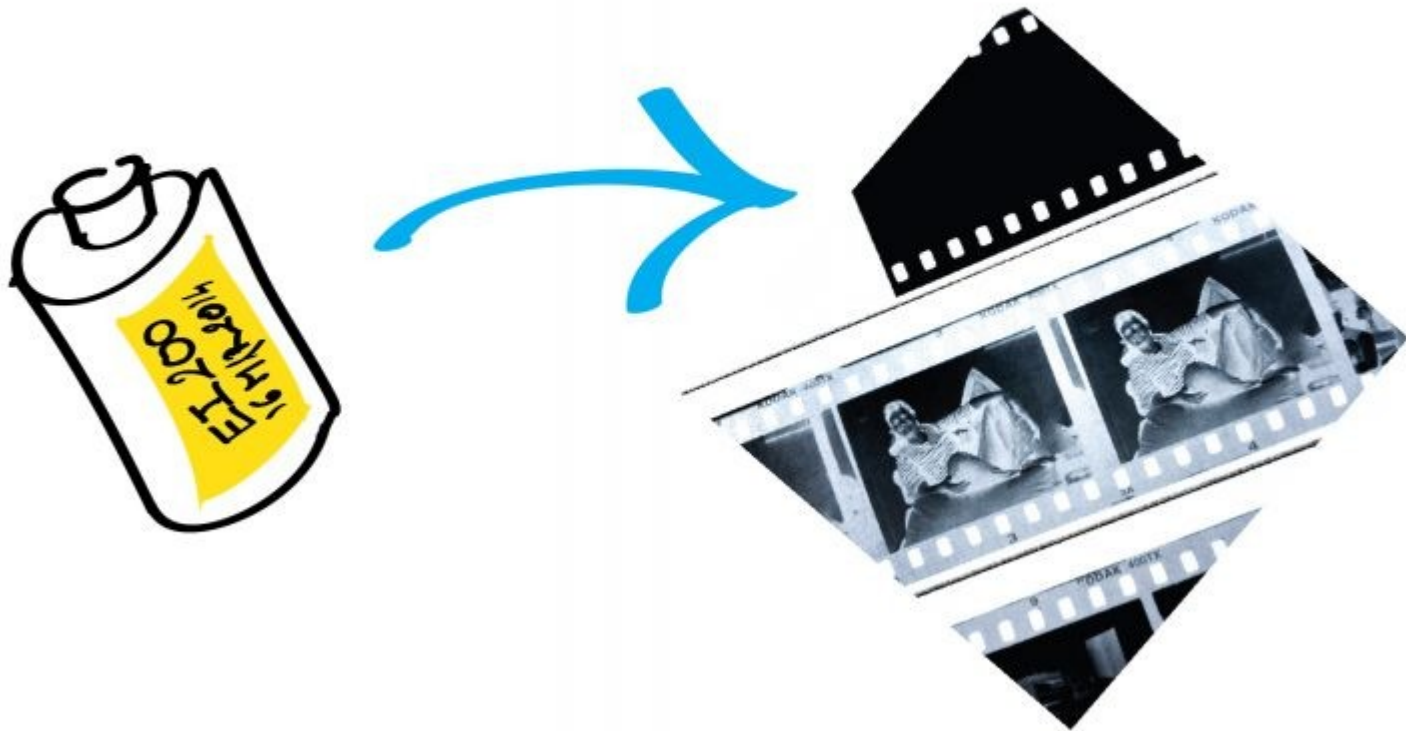
Prof. Dr. Charles A. Wüthrich,
Fakultät Medien, Medieninformatik
Bauhaus-Universität Weimar
caw AT medien.uni-weimar.de

This slide pack

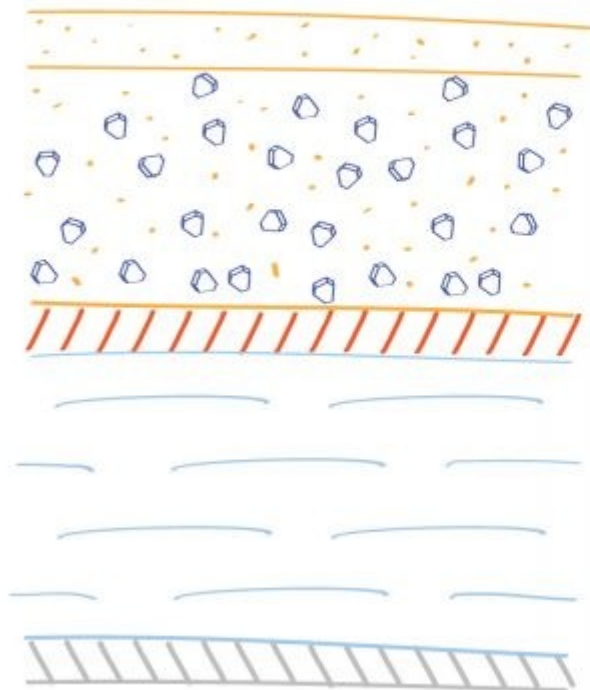
- How film chemistry works:
Images and trace shamelessly taken from

<http://www.film-photography-blog.com/film-processing-chemistry-how-does-it-work/>

MAGIC IN THE DARK



FILM CROSS SECTION



ANTISCRATCH LAYER - NAKED GELATIN

EMULSION - GELATIN + SILVER HALIDE CRYSTALS

ANTIHALATION LAYER

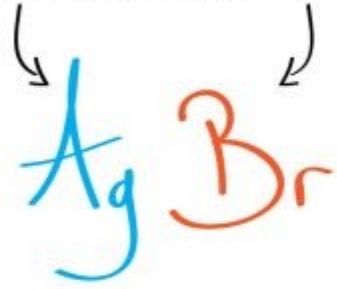
FILM BASE - CELLULOSE TRIACETATE

ANTISTATIC BACKING LAYER

SILVER HALIDE

SENSITIVE TO LIGHT

SILVER - BROMIDE



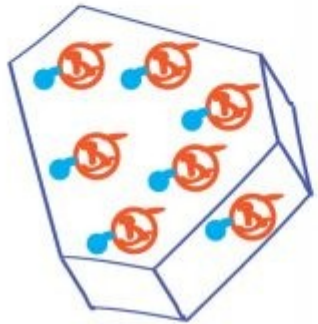
IONIC STATE



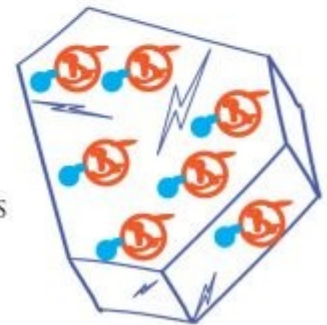
THE SILVER ION IS SMALLER



THEORETICAL
CRYSTAL

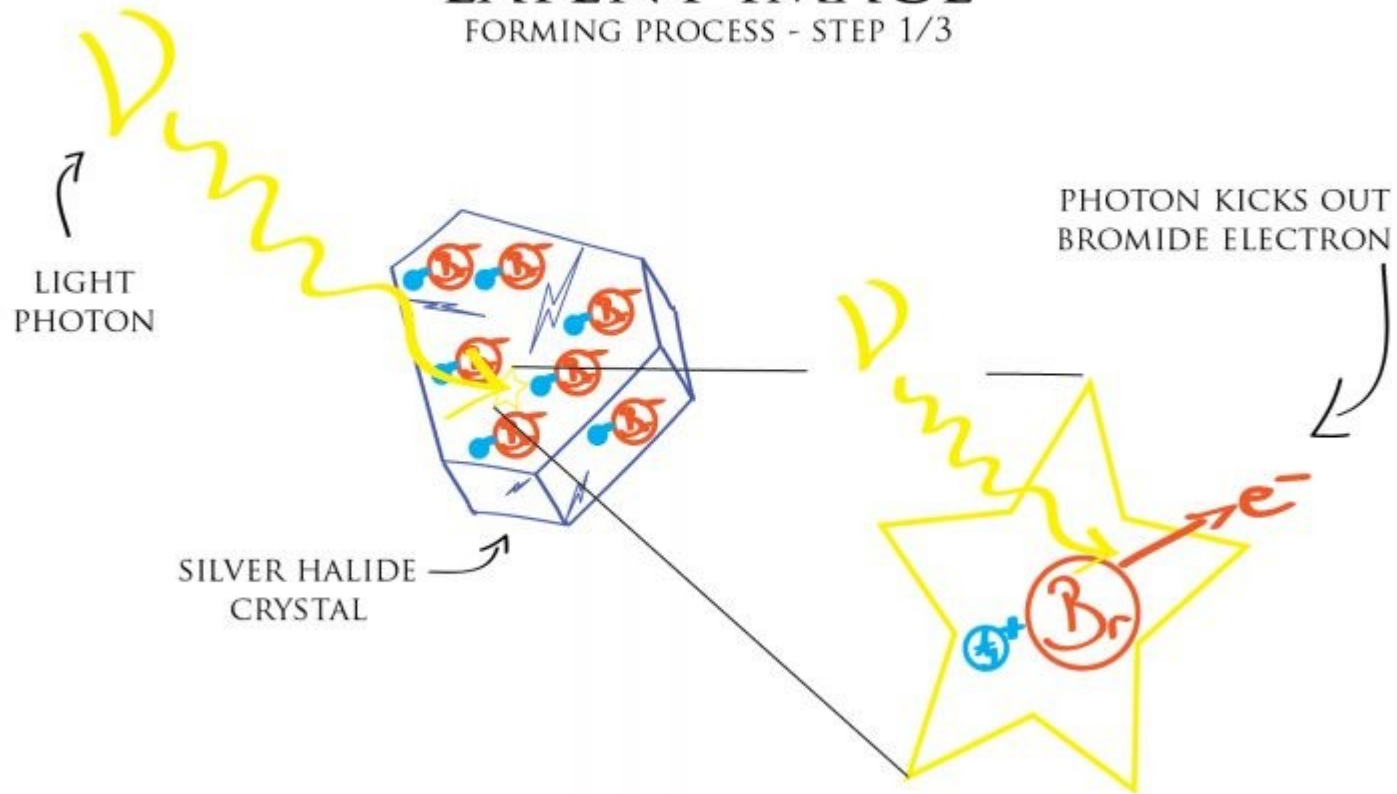


"REALIST"
CRYSTAL
WITH IMPERFECTIONS



LATENT IMAGE

FORMING PROCESS - STEP 1/3

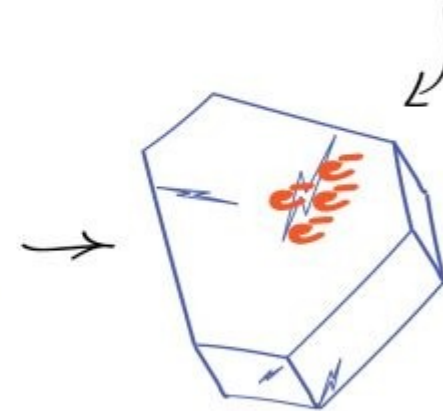
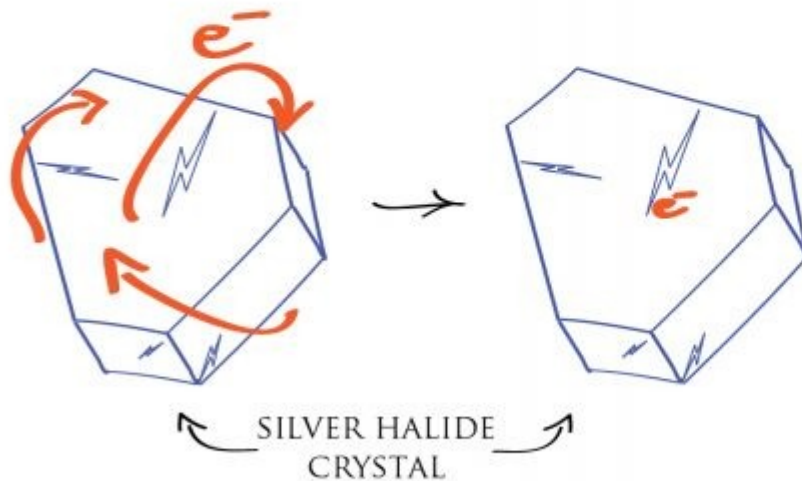


LATENT IMAGE

FORMING PROCESS - STEP 2/3

THE KICKED OUT ELECTRON ROAMS THE CRYSTAL UNTIL BEING TRAPPED IN AN IMPERFECTION

AFTER SEVERAL PHOTONS

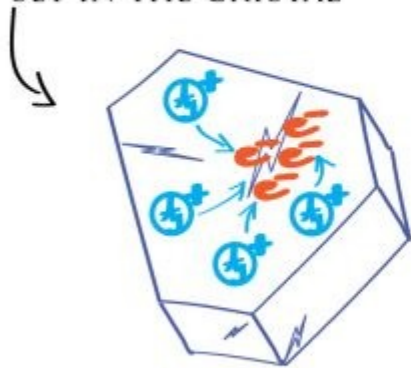


KICKED OUT ELECTRONS ACCUMULATE IN THE IMPERFECTION/IMPURITY

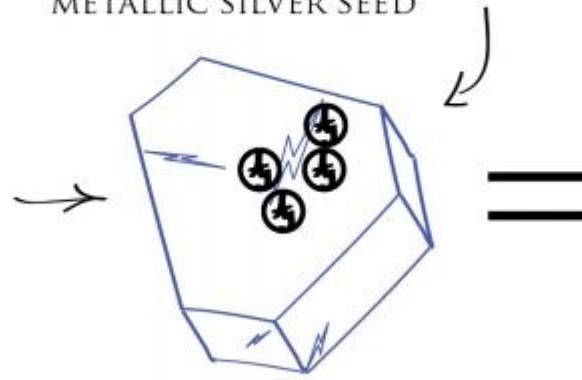
LATENT IMAGE

FORMING PROCESS - STEP 3/3

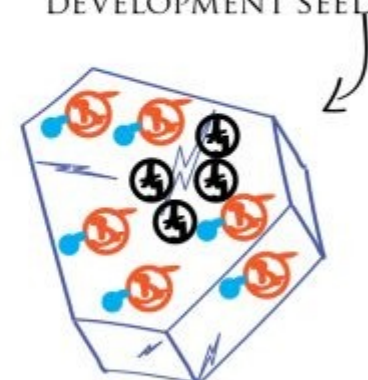
ELECTRONS ATTRACT SILVER IONS NOT WELL SET IN THE CRYSTAL



SILVER IONS COMBINE WITH ELECTRONS TO FORM A METALLIC SILVER SEED



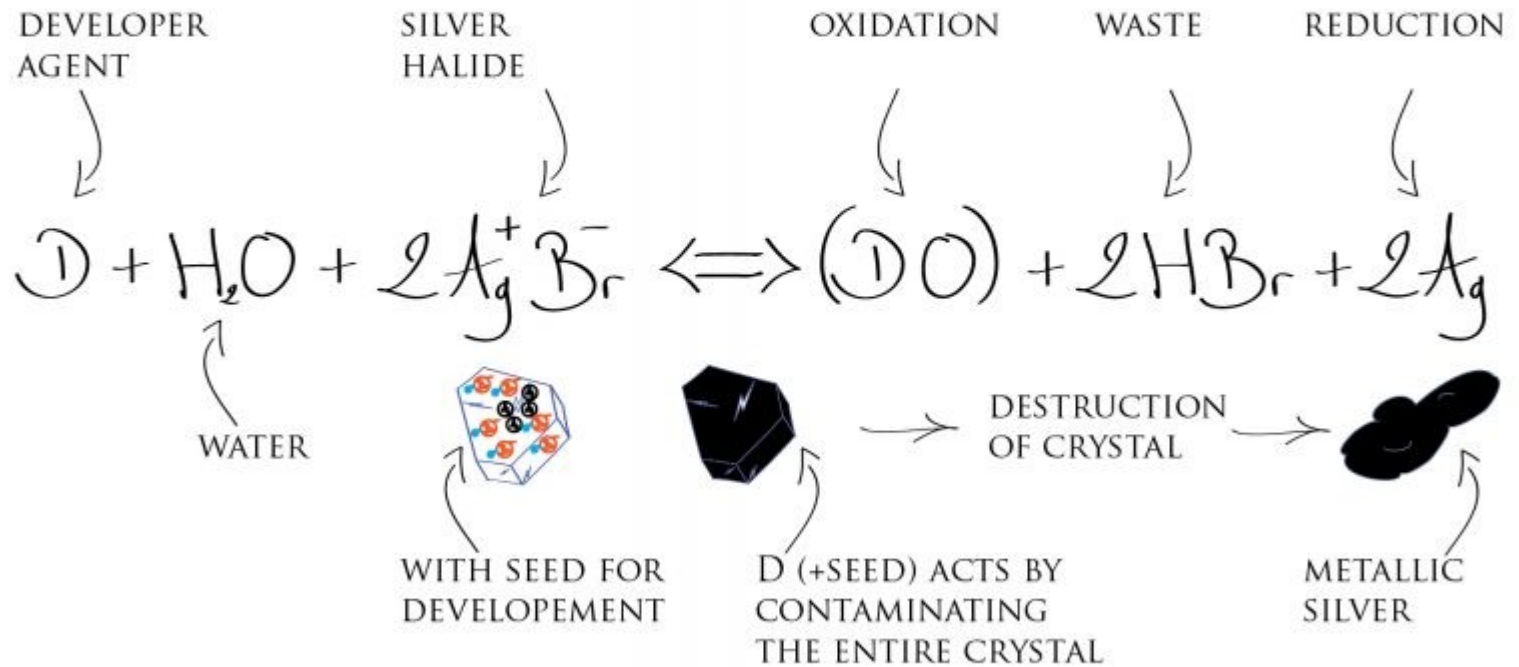
SILVER ATOMS IN GROUP FORM A DEVELOPMENT SEED



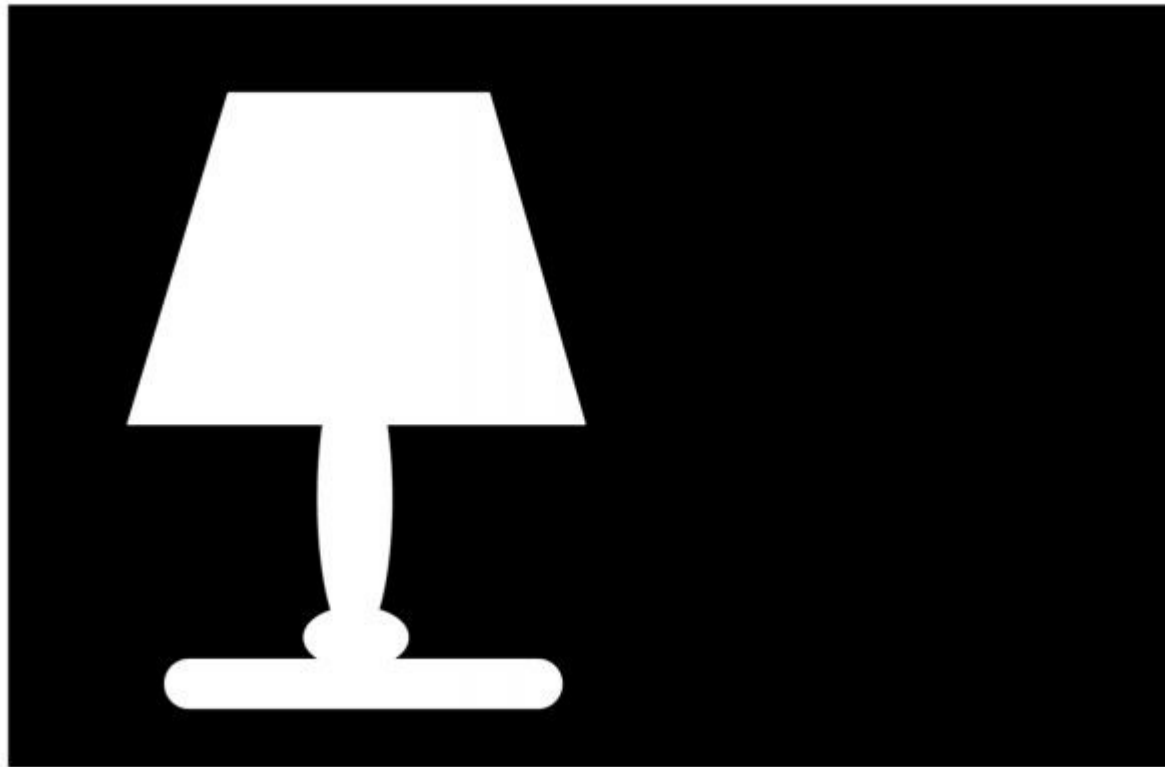
THE LATENT IMAGE IS MADE OF ALL THE DEVELOPMENT SEEDS

DEVELOPER AT WORK

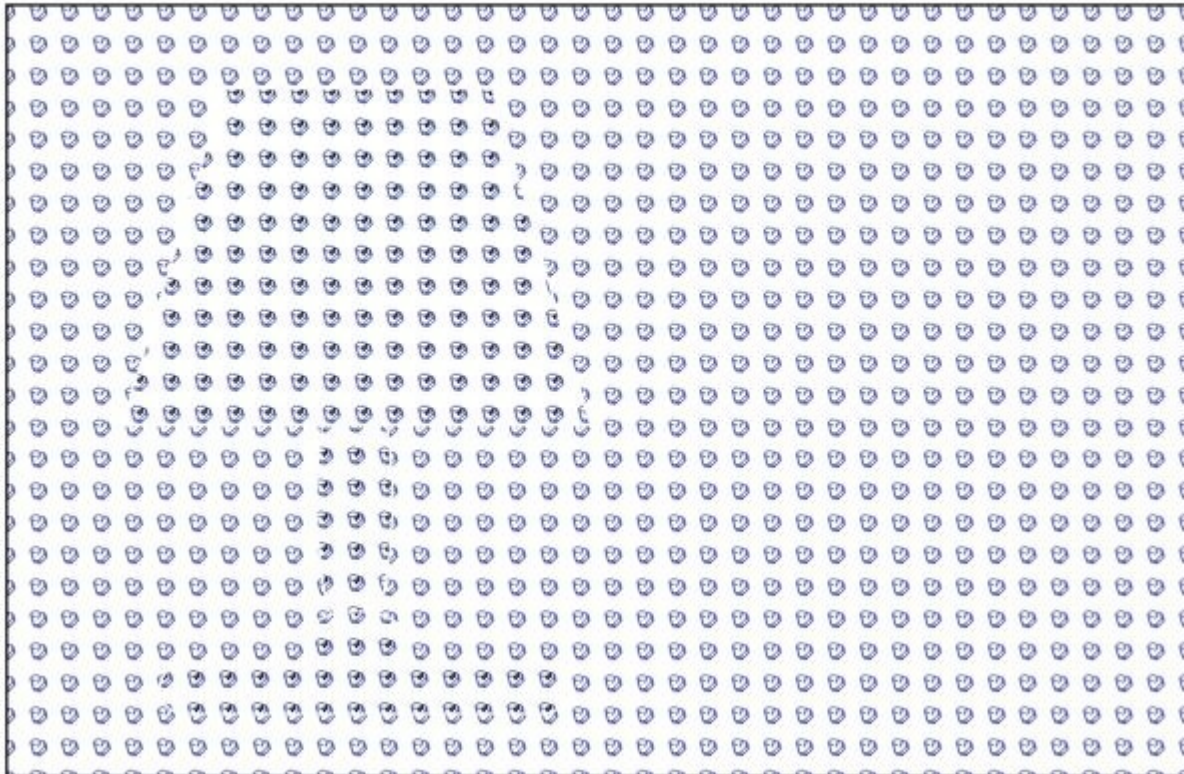
DEVELOPER AGENT: D



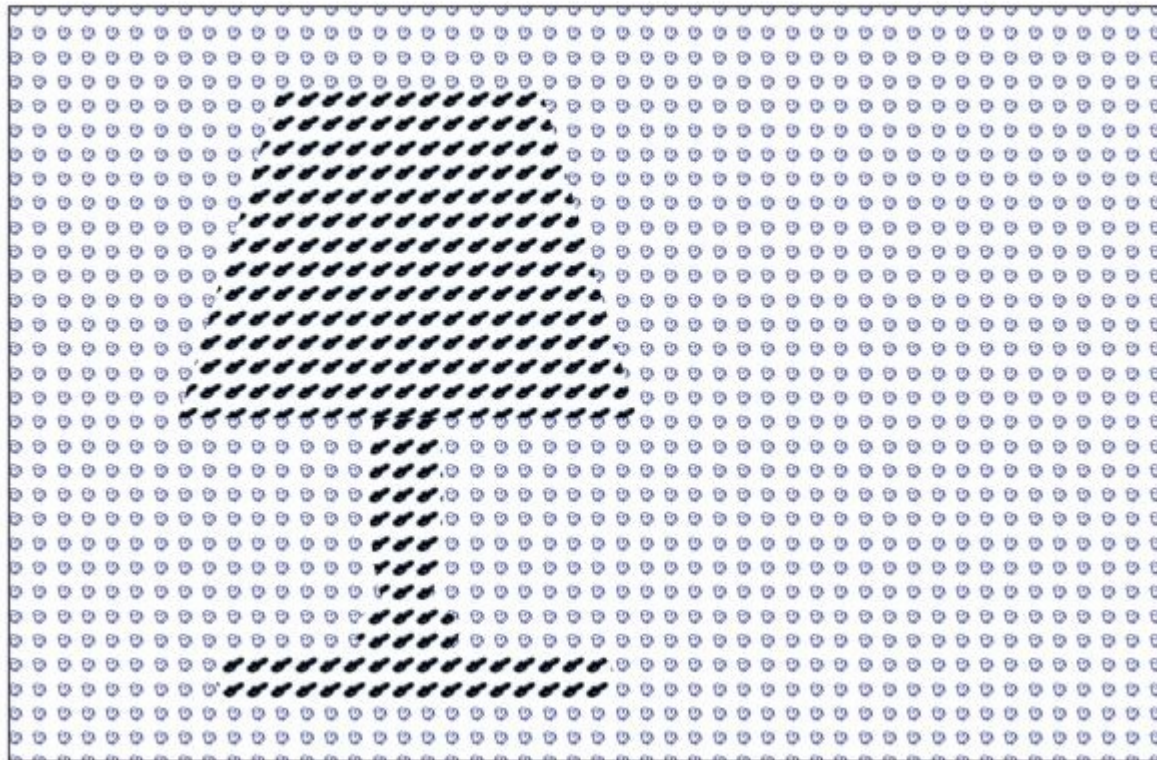
SIMPLE SCENE



LATENT IMAGE (NEGATIVE)

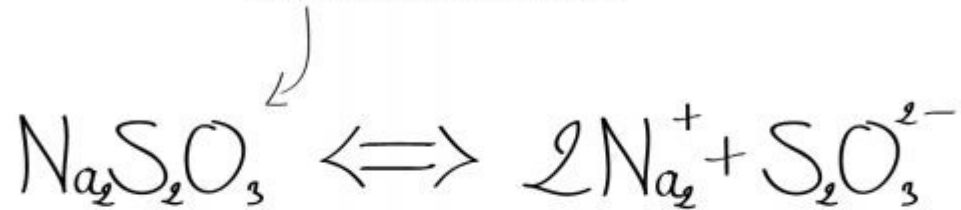


LATENT IMAGE FULLY DEVELOPED

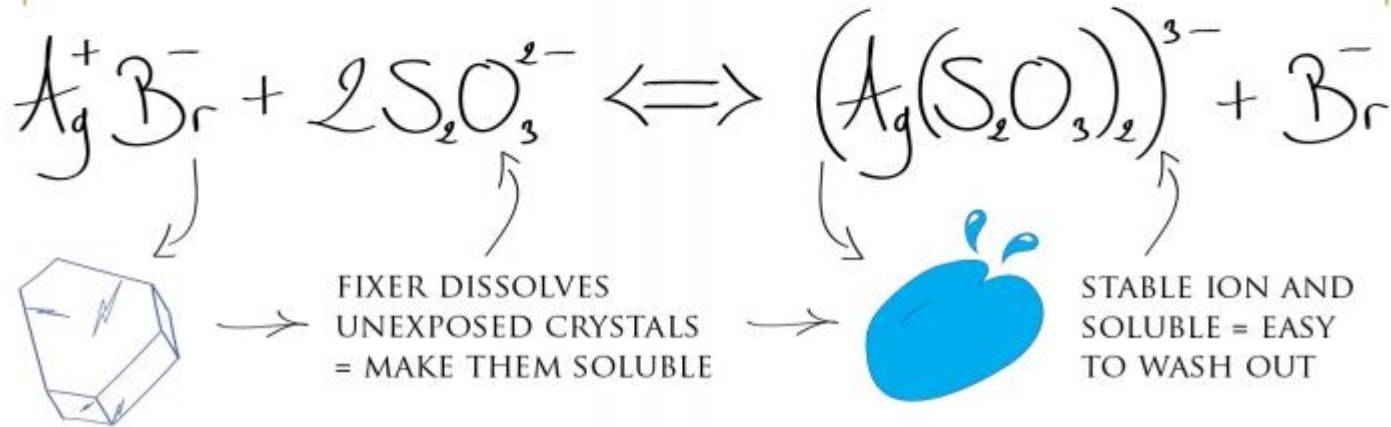


FIXER AGENT

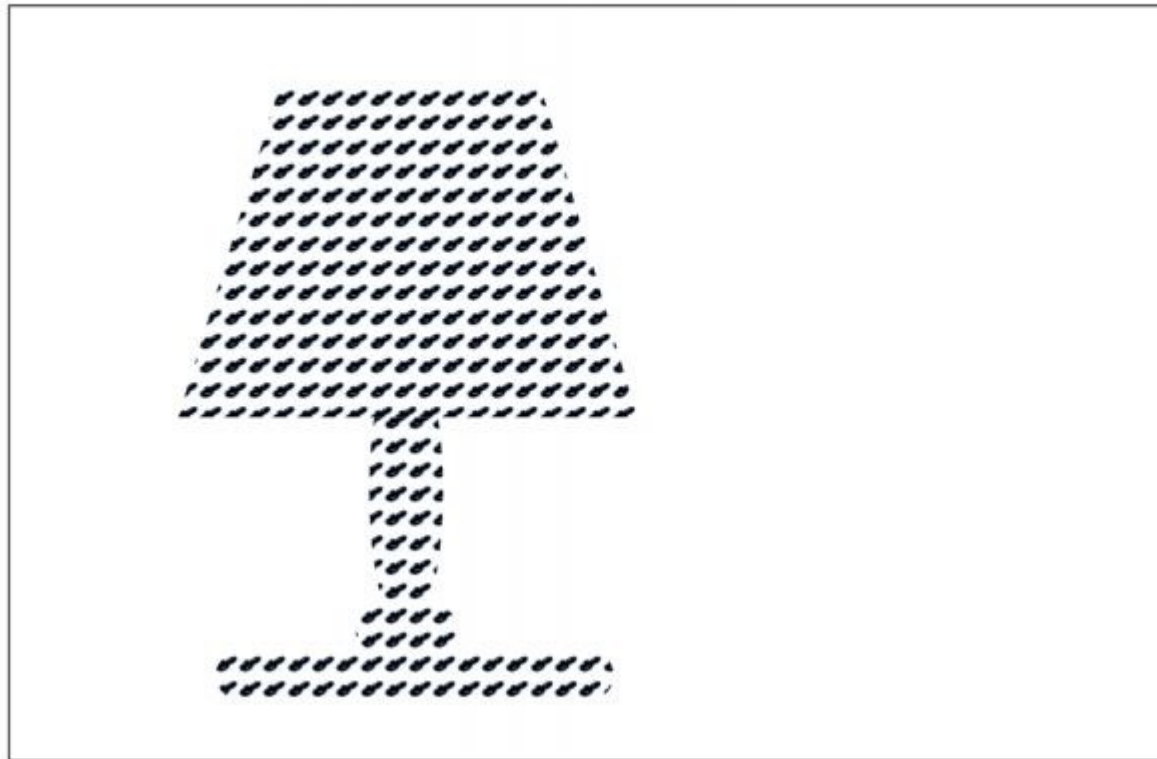
SODIUM THIOSULFATE



FIXING PROCESS



PROCESSED IMAGE: THE NEGATIVE



A little magic...



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Darkroom in Use: <https://www.youtube.com/watch?v=nue495wxIXo>