

## LAUE DIFFRACTION

### A-TRANSMISSION

#### A1-POLAROID CAMERA

1-IF YOU ARE NOT FAMILIAR WITH THE POLAROID CAMERA , CHECK WITH THE PERSON WHO AUTHORIZED YOU TO USE IT.

2-USE YOUR OWN FILM.

3-SET THE TIMER TO A VALUE BIGGER THAN YOUR EXPOSURE TIME BY A FACTOR OF 1/2.

4-PUT THE WATER ON.

5-ALIGN THE COLLIMATOR,TARGET,CENTER OF THE CAMERA

6-LOAD THE FILM.

7-PUT THE X-RAY ON .

8-EXPOSE YOUR FILM.

9-SHIELD THE MACHINE.

11-SET THE VOLTAGE TO 35KV & THE CURRENT TO 20MAMPS.

12-RECORD YOUR NAME ,V/I,FILTER (IF YOUR ARE USING ONE ),TARGET. EXPOSURE TIME IN THE LOG IN BOOK.

13-WHEN THE EXPOSURE TIME IS OVER ,SET TO ZERO THE CURRENT AND VOLTAGE .

14-TURN OFF THE X-RAYS.

15-LET THE WATER ON .

16-STOP THE EXPOSURE FOR YOUR CAMERA.

17-DEVELOP YOUR FILM.

18-LEAVE THE PLACE CLEAN LIKE YOU FOUND IT (REMOVE YOUR SAMPLE ,PUT THE COLLIMATOR IN ITS OWN PLACE)

#### A2. STANDARD CAMERA.

THE LOADING AND DEVELOPPING ARE DONE IN THE DARK ROOM NEXT TO X-RAY ROOM.

FELLOW THE SAME STEPS AS THE POLAROID CAMERA.

**B-BACK REFLECTION**

ONLY THE SET UP WILL CHANGE. X-RAY - CAMERA - TARGET.

**EXPOSURE TIME**

DEPENDS ON :

1-THE COLLIMATOR OPENING .IF YOU CHANGE YOUR APERTURE DIAMETER TO ANOTHER DIAMETER YOU HAVE TO MULTIPLY THE EXPOSURE BY THE RATIO  $(D_{final}/D_{initial})^2$ .

2-THE ABSORPTION COEFFICIENT AND THE THICKNESS OF THE TARGET  $I=I_0 \exp(-KMX)$  (M=ABS., X=THICK.)

3-DISTANCE BETWEEN TARGET TO THE FILM . SO YOU HAVE TO MULTIPLY YOUR EXPOSURE TIME BY THE FACTOR  $(D_{final}/D_{initial})^2$ .

4-THE TYPE OF CAMERA YOU USE . EXAMPLE :IF YOU EXPOSE THE POLAROID FILM FOR 1minute ,THE EXPOSURE TIME FOR A STANDARD SLOW FILM WILL BE 45 minutes .

EXAMPLE OF EXPOSURE TIME:

A SAMPLE OF MO/TA 3 microns THICK : THE EXPOSURE TIME WAS 10 min.with THE POLAROID CAMERA AND 8 hrs.WIYH THE STANDARD CAMERA ,USING THE MEDIUM RANGE COLLIMATOR.