

How CD-RW's Work

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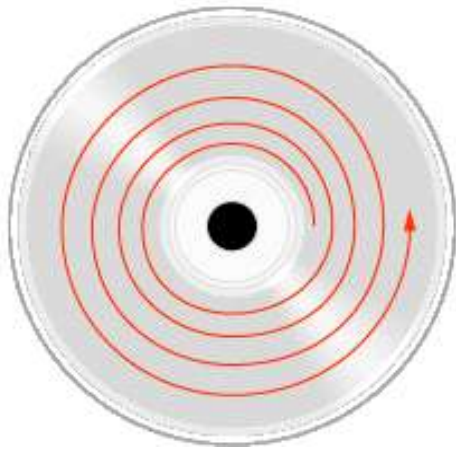
Ph. D student

Amorphous Materials Group, Chemistry Department.

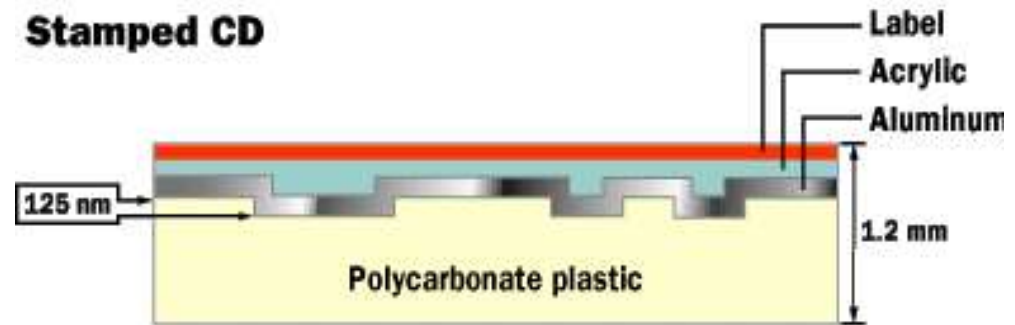
Topic: *Simulations of photo-induced structural changes in amorphous chalcogenides*

Supervisors: *S. R. Elliott and S. I. Simdyankin*

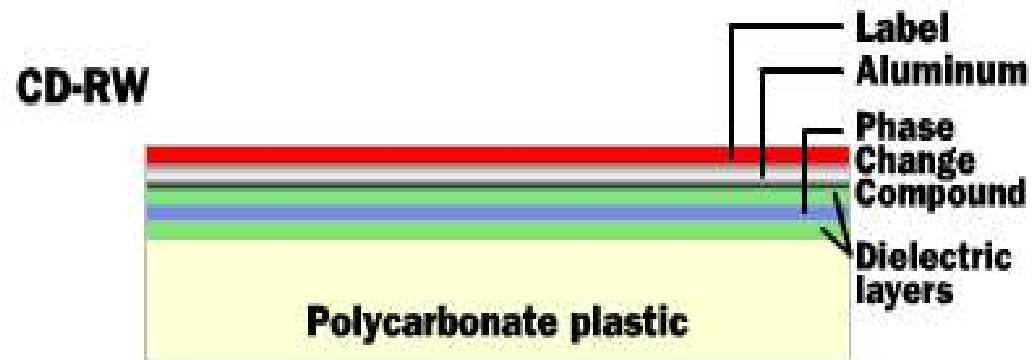
Standard CD (Read only)



Stamped CD



Writeable and Re-Writeable CD's

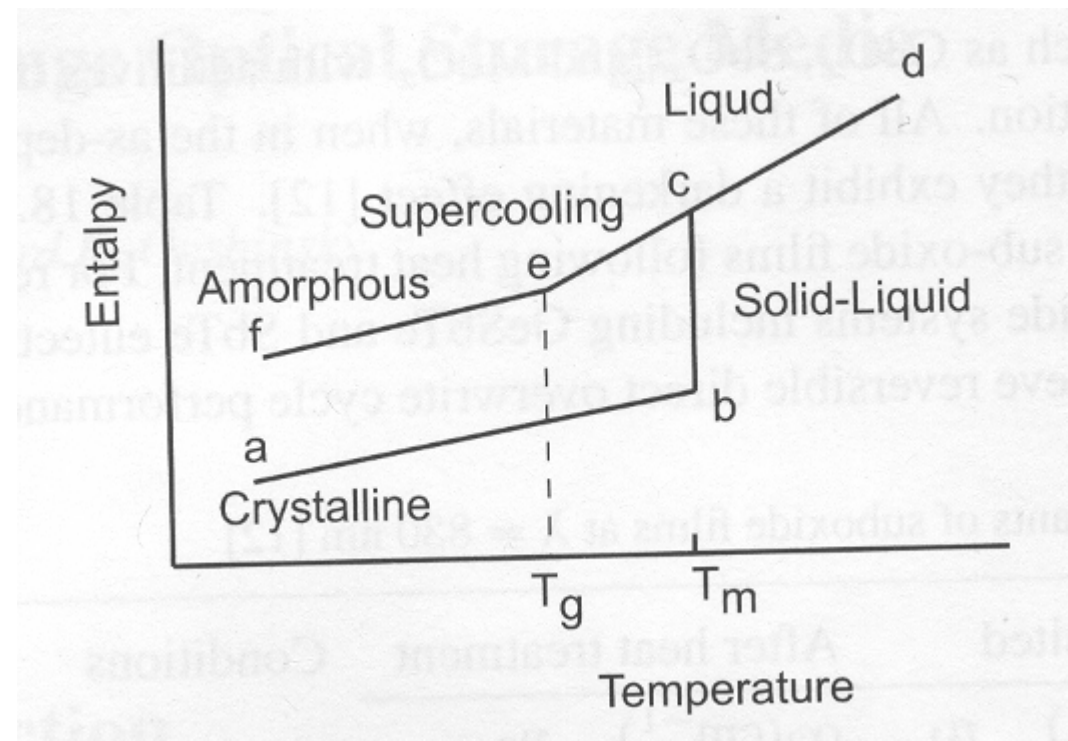
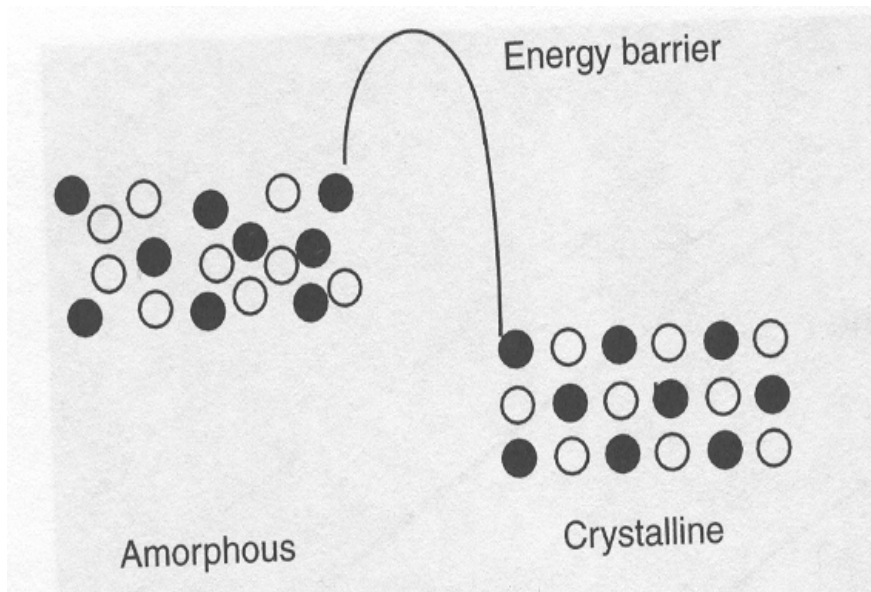


Phase Change Materials

Chalcogenides [from Gk. Chalcos = Copper]

Group 6 S, Se, Te but not O

Ge-Te-Sb



$$\alpha(\text{amorphous}) > \alpha(\text{crystal})$$

Write a → b → c → d → e → f

Erase f → e → crystal

V. high speed changes

Remarks

Basically a photo-thermal effect but can be athermal as well !

- ▶ Photo-induced structural changes
eg. Photomelting

Outlook

Improvements- more storage, faster devices.
Holographic storage (Terabyte storage).