

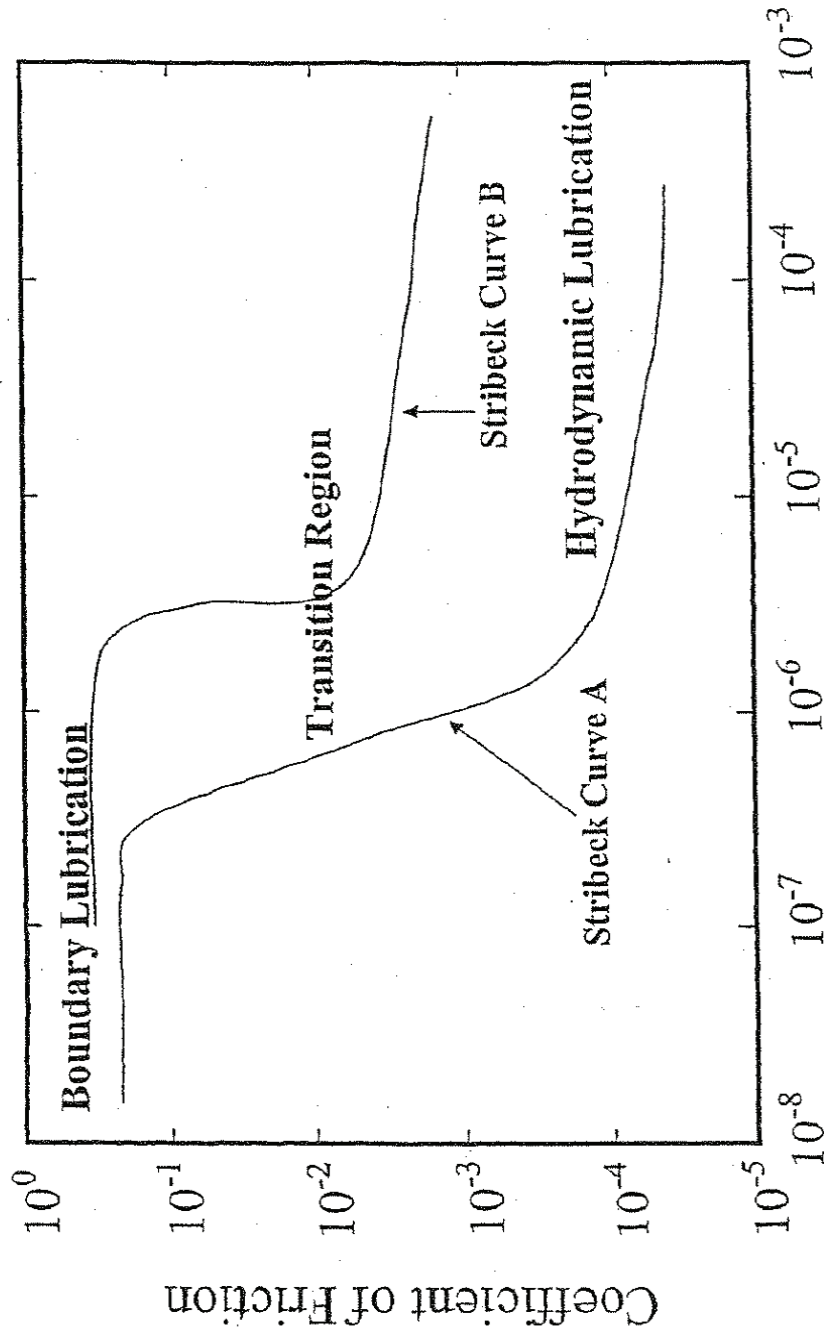


Figure 1 Stribeck curves for two different processing Operations denoting the 3 well defined regions

- 1) Boundary lubrication region
 - 2) Transition region
 - 3) hydrodynamic lubrication regions
- Also the two different curves A and B emphasize two points:
- 1) The transition from boundary lubrication to the hydrodynamic Lubrication can happen at different values of Sommerfeld number
 - 2) The actual value of the coefficient of friction in the two regions Can be varied

Figure 2 – Single shot synthesis

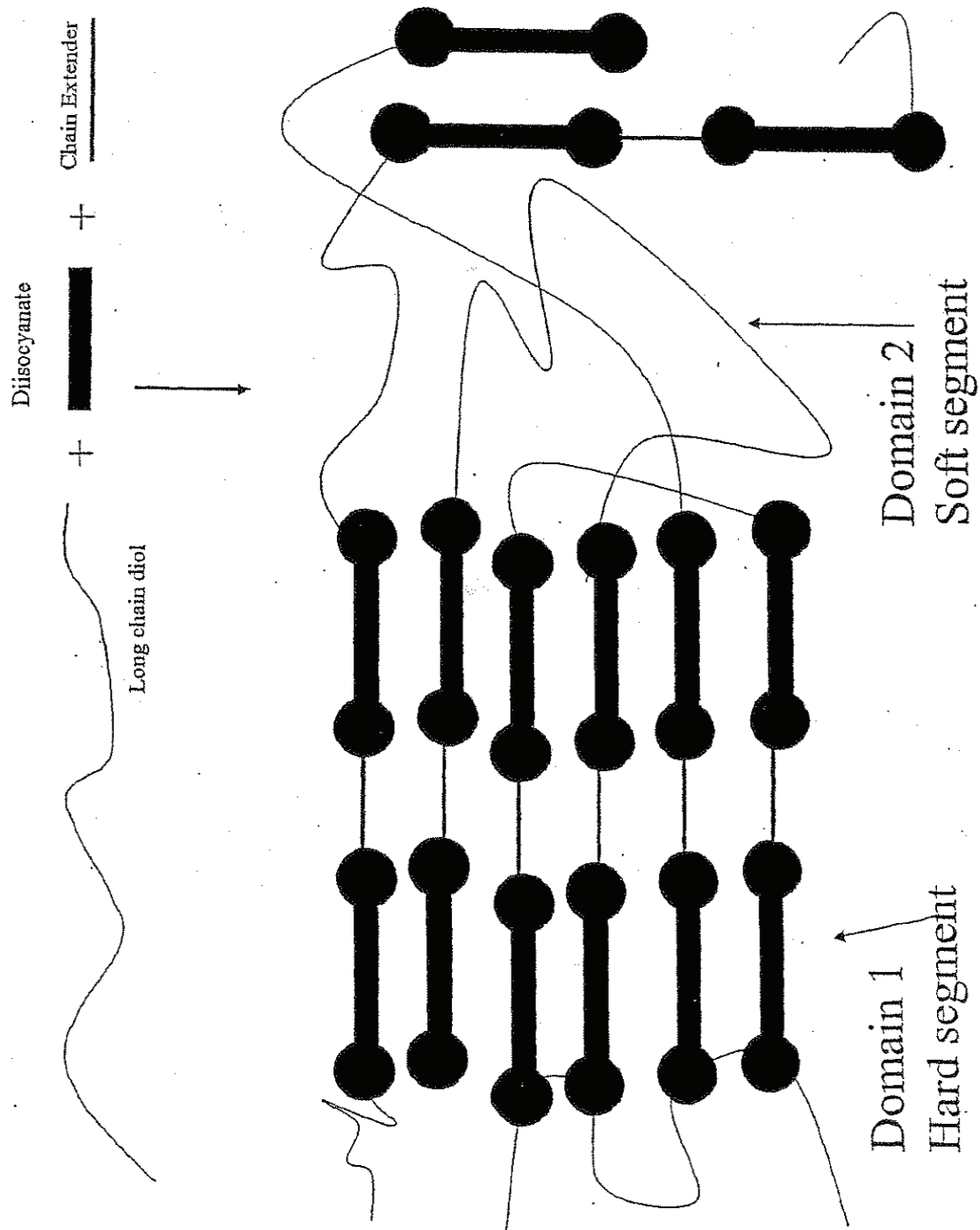
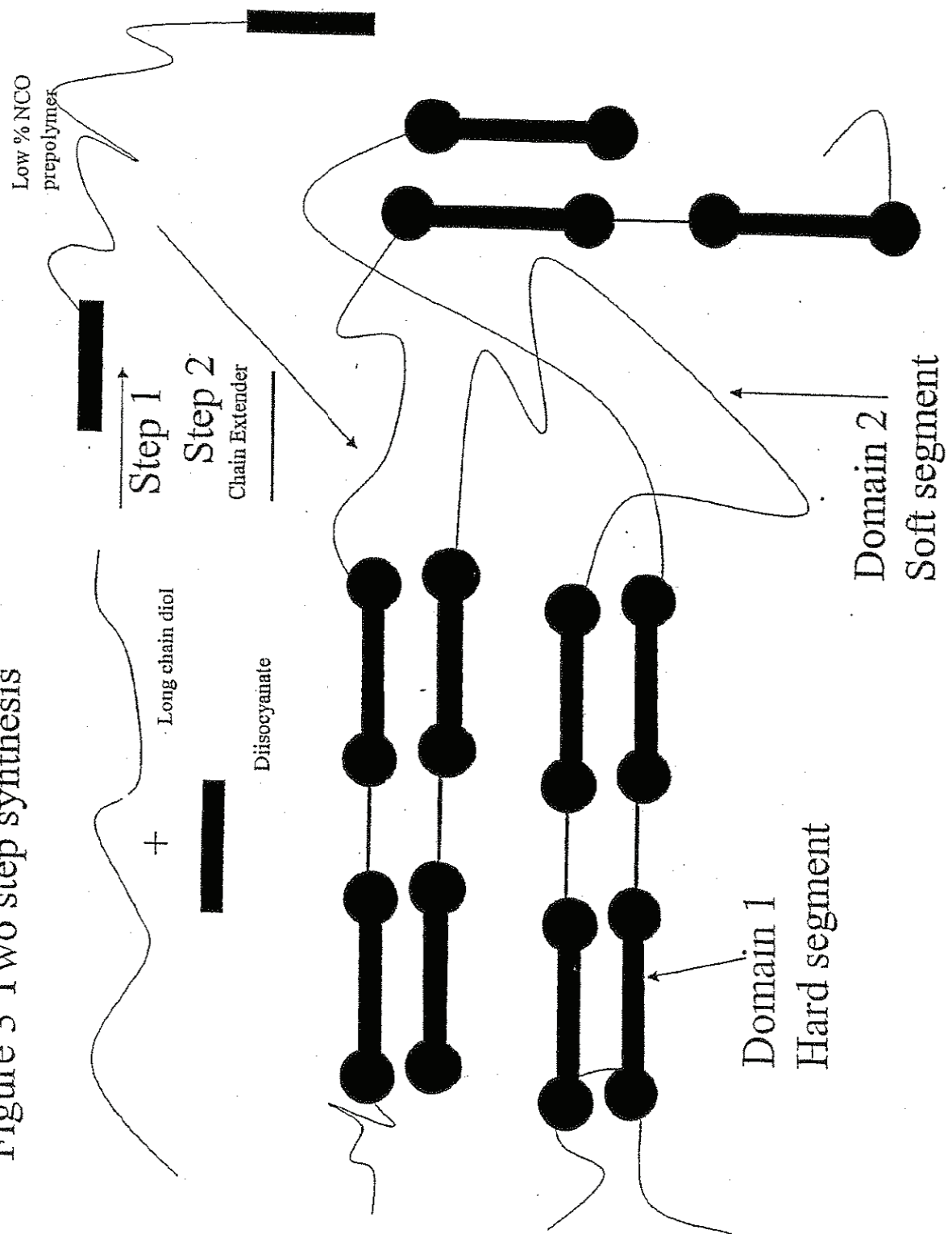


Figure 3 Two step synthesis



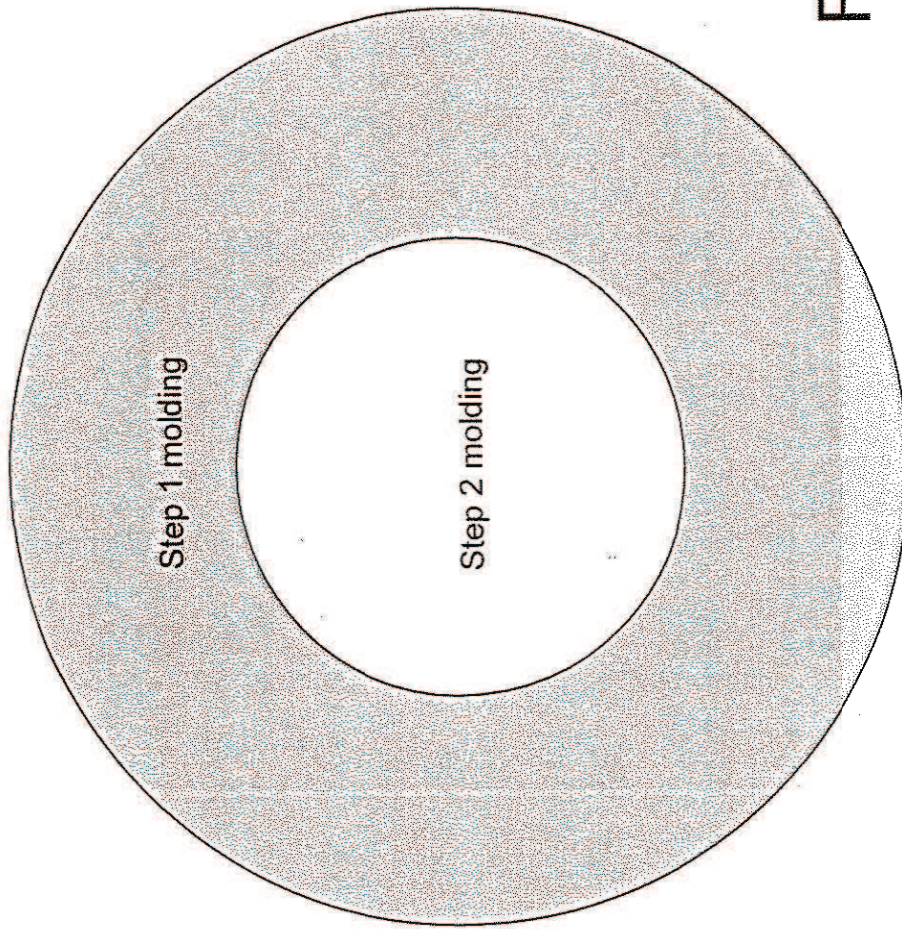


Figure 4:
Annular step
graded
Pad synthesis

Region 2

Region 1

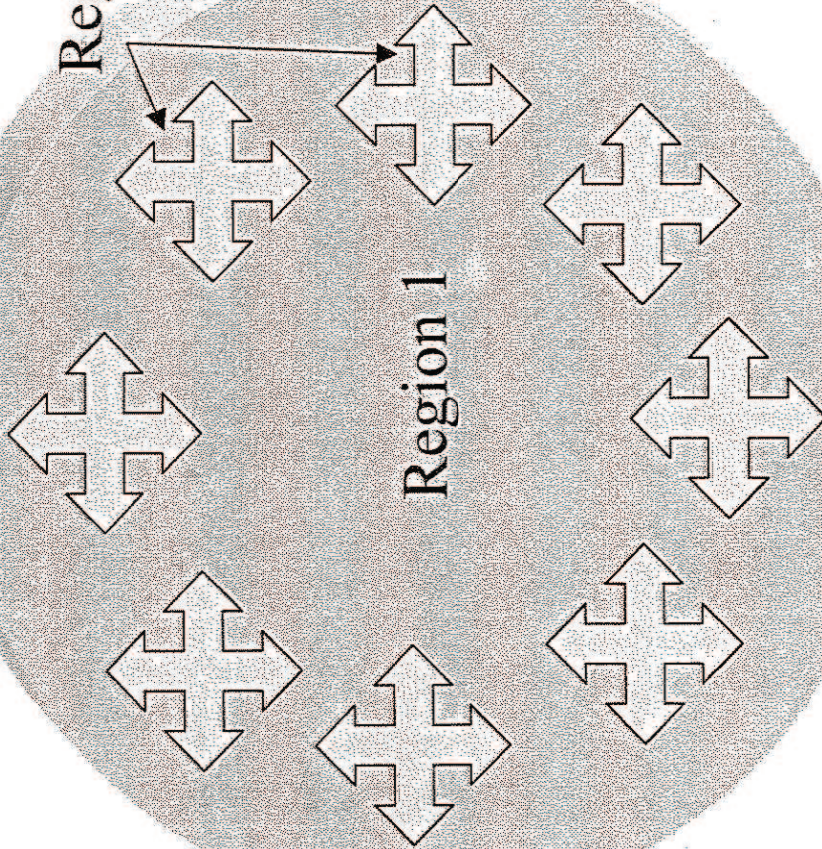


Figure 5

Figure 5 Illustration of a step graded pad.
 Region 1(gray region) is first molded using Polymer A.
 Region 2 is then molded using Polymer B.
 Note: when Polymer A is being molded in a circular mold,
 Dividers are placed such that none of the polymer A in step 1
 Reaches the region 2. After molding of polymer A is complete,
 Polymer B is molded into the region 2 and hence the polymer
 Pad is completed

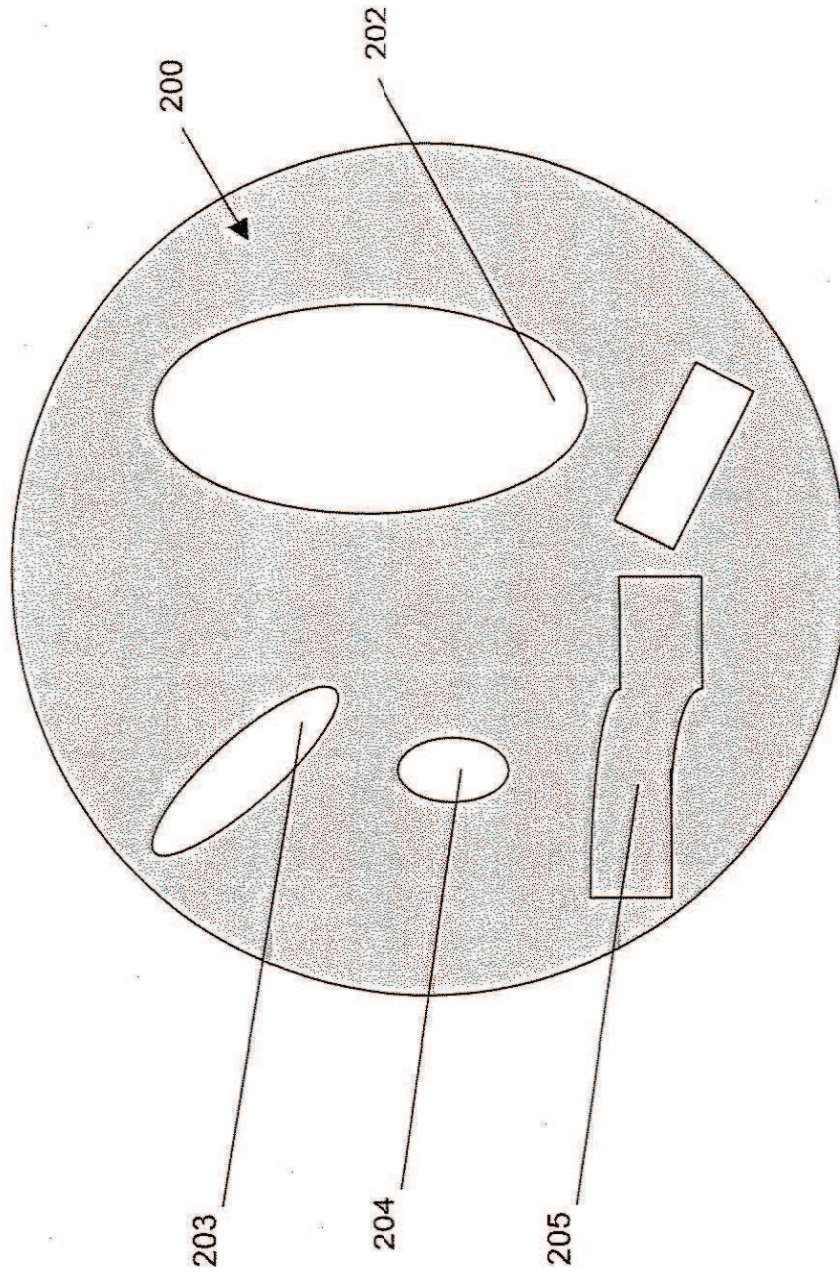
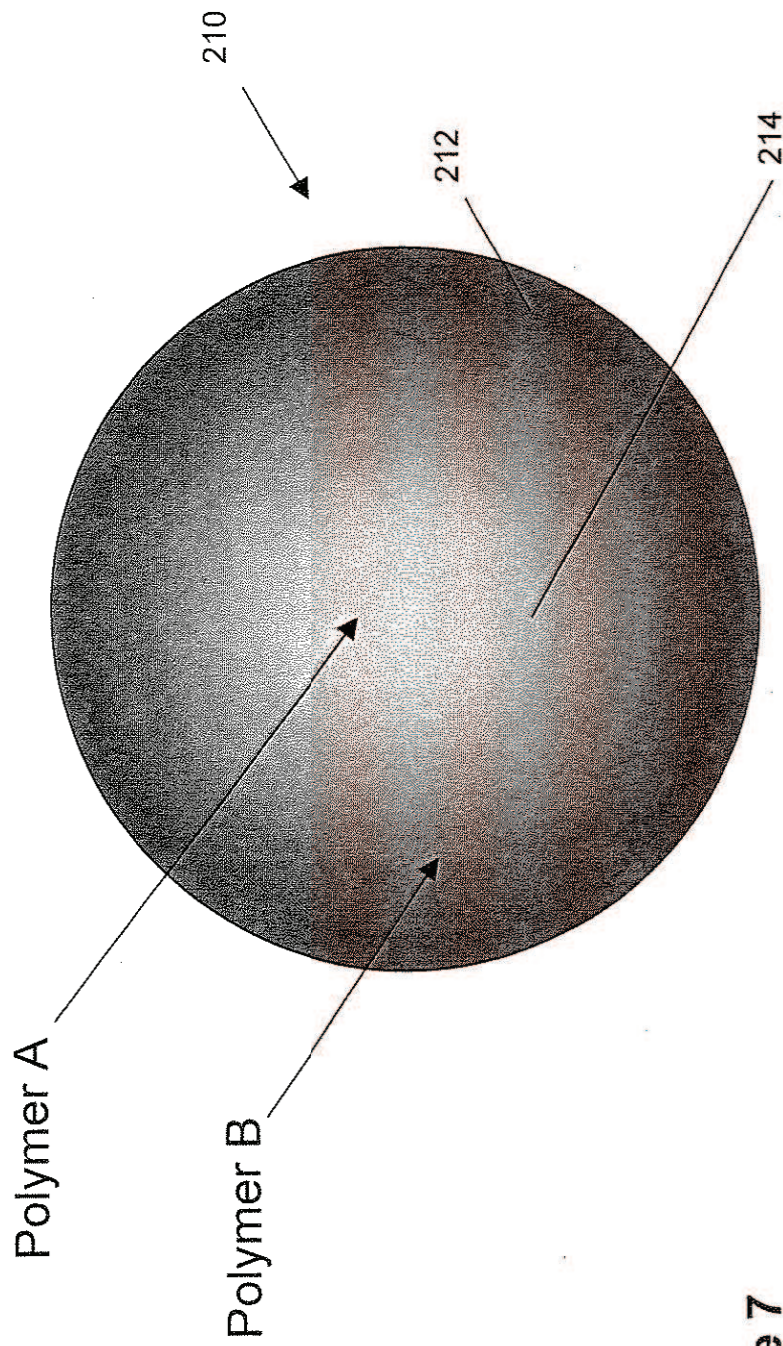
Figure 6

Figure 6: Illustration of a polymer pad: utilizing complex geometry
Technique: injection molding

**Figure 7**

Continuously graded pad
Polymer A is injected from the center
Polymer B is injected from the edges

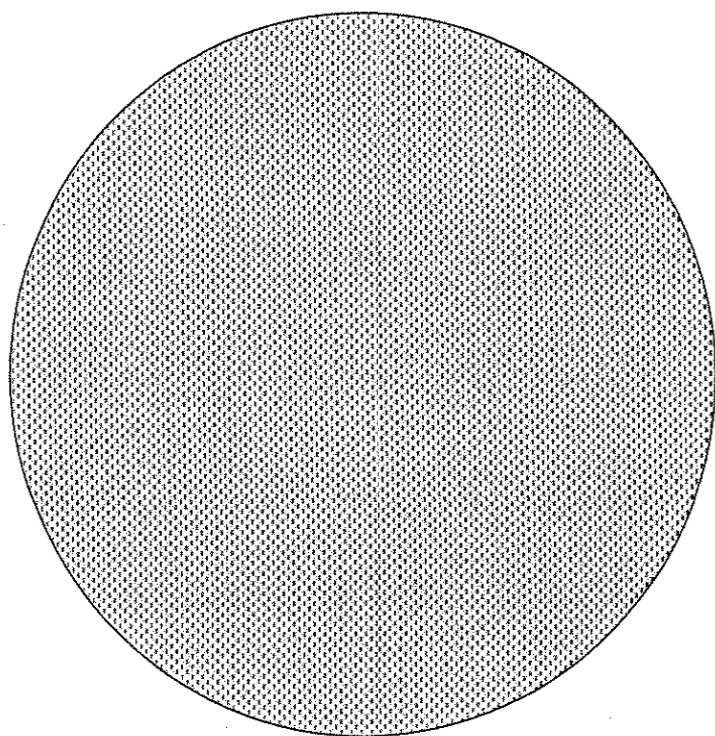
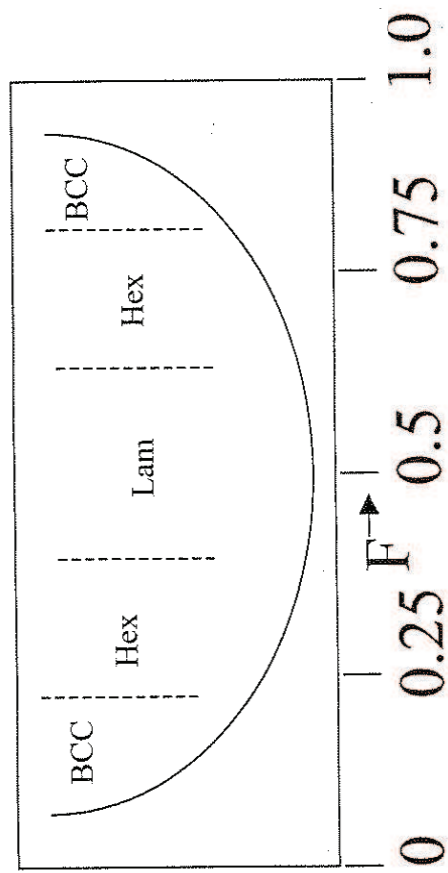


Figure 8

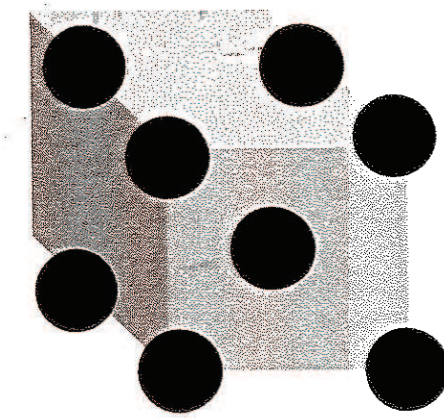
Microdomain texture in a polymer pad

Method: injection molding of a block copolymer

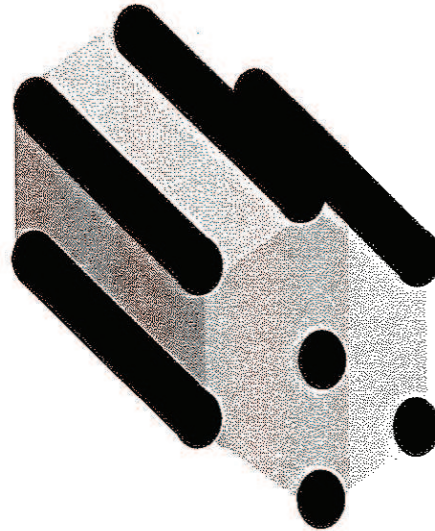
Figure 9



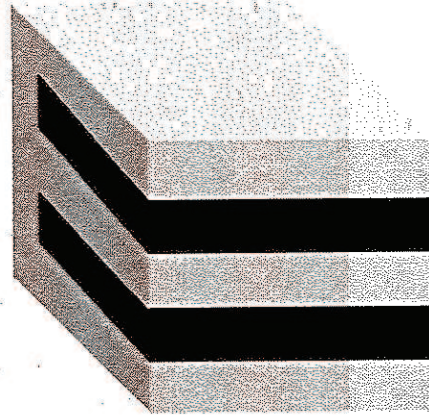
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Cubic (BCC)



Hexagonal (Hex)



Lamellar (Lam)