Almost 14,000 oil spills are reported each year in the United States alone. Immediate response to the release using efficient recovery techniques can significantly reduce environmental impacts and decrease the cost of the clean up.

Existing mechanical recovery equipment:
- Shapes of the recovery unit: mop, belt, brush, disc, and drum.
- Materials of the recovery surface: steel, aluminum, and general-use plastics (polyethylene and polypropylene)
- Material selection has not been based on the adhesive properties, but rather on historical practice, price and availability.

The proposed research will help identifying parameters having major effect on oil adhesion to the recovery surface and select materials that have the highest oil recovery rate.

**Preliminary Conclusions**
- The contact angle hysteresis was found to be proportional to the ability of a material to recover oil.
- Several materials have been identified as having high oil recovery potential under dry or water wet conditions.
- Oil composition and surface roughness of test material was found to have a significant effect on the results of the adhesion tests. Higher roughness results in lower contact angle and larger recovered mass, for the same oil-polymer pair.

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