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Lubricant-Friendly, Superhard and Low-Friction Coatings by Design

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Poster P-7

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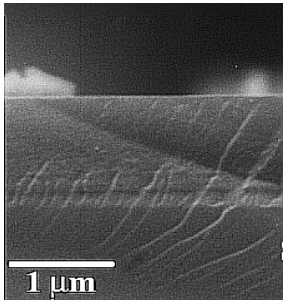
Project Summary

Poster P-7

Parasitic energy losses due to friction account for ~10% of fuel energy in engines (which amount to ~1.2 million barrels of petroleum per day)

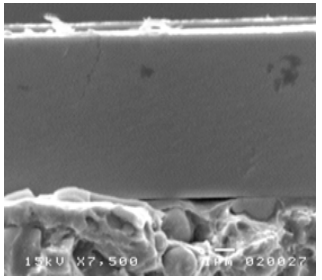
Superhard and low-friction coatings/ surface treatments can help improve fuel economy and durability in engines



Near-frictionless Carbon:

-Friction coefficients down to 0.001 feasible

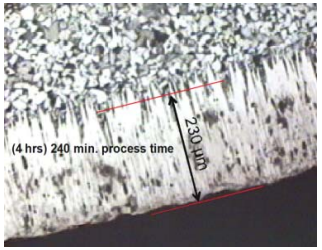
-Excellent compatibility with alternative fuel environments



Superhard Nanocomposite Coatings:

-Extreme resistance to wear and scuffing

-Superlow-friction under boundary lubrication



Ultra-fast Boriding

-10s of micrometer-thick boride layers in minutes

-2 to 3 times harder than nitrided and/or carburized surfaces