



Michigan Photonics Cluster

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Press Release

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Winters Blast Keynote: Shiloh Industries

On Jan 19, Mi-Light held its Winters Blast Quarterly Members meeting. Jim Evangelista, Director, Core Advanced Engineering & Lab Services, at Shiloh Industries, Inc. gave a thought provoking presentation as our Key Note speaker. He talked about laser material processing for light weight vehicles in terms of what the future holds. Here are just a few of the highlights. To view the entire presentation, go to the member's only documents section of the [Mi-Light website](#).

Jim talked about global automotive trends leading to changes in materials especially lightweighting. There is still pressure to improve emissions, performance, and safety. New materials and alloys are being used; like, next generation steels and aluminum alloys, resins & plastics, magnesium, and carbon fiber. He said that, "More material mixes will be used in the coming decade as automakers move to meet increasing fuel economy, emissions, and safety regulations." Joining these materials will be the key to future assemblies where processes and business will change to keep pace with demand. Jim went on to say that, "Companies that understand the methods to achieve the targeted properties will have a strategic advantage in: cutting, blanking and piercing on edge properties; joining/ forming and lubrication requirements; casting, grain structure, and corrosion effects."

As part of his presentation, Jim discussed how lasers enable efficient state of the art manufacturing. As an example, short flanges or flangeless designs are now possible because lasers can produce welds that are as strong as spot welds requiring larger flanges. More lasers are being efficiently used in cutting and trimming operations as well as blanking all the way up to annealing and heat treating. Lasers are being used to thermal weld many kinds of plastics. Short pulse lasers are used in: marking, perforating, drilling, and ablating surface coatings and films in addition to removing oxidation and paint on metals.

Additive manufacturing is yet another area for the application of lasers. Jim explained that, "Additive manufacturing is a process in which a three-dimensional object is created out of a digital model. The additive process builds up parts layer by layer." We know this as 3-D printing for plastics. What many may not be familiar with is the evolution of the use

of lasers in metal deposition, metal fusion, or that tooling can now be produced with the additive manufacturing process.

The above summary is only a snap shot of the information Jim gave us. As you can see, the world is quickly changing with new technological advancements in materials and laser applications. We enjoyed Jim's presentation and had many conversations afterwards.



Jim Evangelista, of Shiloh Industries, presenting to Mi-Light members