IntraAction Unveils Groundbreaking AOD for Advanced EUV (extreme ultraviolet) semiconductor applications

IntraAction is proud to announce the launch of its latest patent-pending AOD with acousto-optic effect, marking a significant advancement in laser technology.


intraaction laser control

BELLWOOD, IL, UNITED STATES, February 26, 2024 /EINPresswire.com/ -- IntraAction, Inc., a leader in laser and photonics technology, is proud to announce the launch of its latest Acousto-Optic Deflector (AOD). This cutting-edge device leverages the acousto-optic (AO) effect to diffract and shift the frequency of light using sound waves, marking a significant advancement in the field of laser technology. The company is also proud to announce 12 new allowances/issuances for its AOD/AOM products from its recently filed Patent Application Serial Nos. 18540005, 18518602, 18499918, 18444635, 18379093, 18377291, 18377289, 18332719, 18332718, 18332717, 18332716, 18332715, 18332714, 18332713, 18240297, 18226895, 18132076, 18132074, 18132070, 18132069, 18132064, 18132058, 18132054, 18132047, 18132034, and 18132025. These patent applications are expected to build the foundation of IntraAction's great patent portfolio.

> I am proud to witness the unparalleled depth of our patent portfolio built by patent attorneys at Patent PC to ensure that our innovations are positioned for maximum impact in the ever-evolving market”
>
> *Allen Gilbert, IntraAction CTO*

Designed with precision and efficiency in mind, IntraAction acousto-optic products are set to revolutionize the way lasers are used in various applications, including laser cutting, drilling, and spectroscopy. Its ability to control light through the interaction of sound waves with an optical crystal makes it an indispensable tool for laser designers seeking to push the boundaries of what's possible with laser technology.

IntraAction's AO products have been used in EUV (extreme ultraviolet) applications. Today's EUV lithography systems are designed to push the boundaries of chip manufacturing by enabling the production of chips with extremely small features, down to 8 nm. The use of AODs can contribute to this high level of precision by allowing for the dynamic control of the laser beam's direction and intensity. This control is crucial for achieving the uniformity and accuracy required in the lithography process. The ability of AODs to rapidly change the direction and properties of laser beams without moving parts can lead to improvements in the efficiency and speed of the lithography process. This is particularly important in high-volume manufacturing environments where throughput is a critical factor. By enabling faster and more flexible beam steering, AODs can help reduce the time required for each exposure, thereby increasing the overall throughput of the lithography system.

Integrating AODs into EUV lithography systems has been shown to simplify the design and operation of the optical system. Traditional systems rely on mechanical movements to adjust the direction and focus of the laser beam, which can add complexity, increase the risk of mechanical failure, and lead to higher maintenance costs. The use of AODs, by contrast, allows for electronic control of the beam, which can reduce the need for complex mechanical parts and potentially lower the overall cost of the system.

The inherent benefits of AOD technology—such as enhanced resolution, improved efficiency, reduced complexity, and support for advanced chip architectures—align well with the goals and challenges of EUV lithography. These benefits suggest that AODs could play a valuable role in further advancing the capabilities of EUV systems in semiconductor manufacturing.

Key Features and Benefits:

* Versatile Light Control: IntraAction's AOD can deflect, alter the amplitude of light, shift frequency, or change polarization, offering unparalleled control over laser light properties.

* High Efficiency: Traditional acousto-optic devices have been limited by their AO interaction strength. IntraAction's AOD boasts significantly improved modulation efficiency, making it a superior choice for applications requiring precise light manipulation.

* Broad Application Range: From laser printing and video recording to Q-switching lasers and spectroscopy, IntraAction AOD's capabilities make it a versatile solution for a wide array of industries.

* Innovative Design: The IntraAction design addresses the limitations of traditional acousto-optic modulators, offering better energy confinement capabilities for photons and phonons, and reducing energy dissipation.

* The introduction of the IntraAction AOD represents a leap forward in laser technology,

providing laser designers with a tool that offers both versatility and precision. Its innovative design and enhanced efficiency make it an ideal solution for cutting-edge applications, including those in the fields of telecommunications, spectroscopy, and beyond.

* IntraAction's commitment to innovation and excellence is evident in the development of its AOD. By offering a device that significantly enhances the control and manipulation of laser light, IntraAction is setting a new standard for the industry.

About IntraAction
IntraAction (www.intraaction.com) is a pioneering company in the field of laser and photonics technology. With a focus on innovation and quality, IntraAction strives to develop products that meet the evolving needs of its customers. From acousto-optic modulators to advanced laser systems, IntraAction is dedicated to pushing the boundaries of technology to create solutions that advance the field and provide value to its users.
For more information about the Acousto-Optic Modulator and other IntraAction products, please visit IntraAction's website.
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