FLASH newsletter content

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Optimizing Laser Manufacturing: Leveraging Machine Learning for Enhanced Efficiency and Quality

In the **FLASH-IANUS platform**, the machine learning algorithm will be essential for optimizing production by systematically analyzing and predicting the optimal laser parameters to achieve desired quality outcomes for various materials. This approach enhances efficiency, reduces trial-and-error, and ensures consistent high-quality results across different laser machining processes. **Cosmos Thrace's (COS)** task has been to define the inputs, outputs and desired outcomes for this algorithm, which is a critical step in ensuring the model can accurately predict the best parameters for each processing step. To support this effort, **COS** has been reviewing relevant scientific papers, gaining valuable insights into advanced techniques and methodologies that can be adapted to improve our model's accuracy and robustness.

Looking ahead, **COS'** next steps involve collaborating with other partners in the consortium responsible for developing the experimental database, once the system architecture design has been delivered. This will be essential for refining the model's accuracy and robustness. When useful machine data is available, **COS** will focus on training the algorithm and developing rigorous testing protocols to evaluate its performance. Incorporating operator feedback will be crucial in continuously improving the model's recommendations.