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From Pixels to Formulations: Leveraging AI for Personalized Dermatologic-Relevant Skin Care Solutions

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Introduction of research

Artificial intelligence (AI) is transforming dermatology and cosmetic science by bridging advanced imaging, data analytics, and formulation design. This keynote will explore how AI-driven imaging systems—from high-resolution digital photography to multispectral and 3D scanning—capture detailed skin attributes such as wrinkles, pigmentation, and elasticity, forming the foundation of precision analysis. By leveraging machine learning and deep learning models, AI enables more accurate classification of skin types and concerns, predictive analytics for treatment outcomes, and tailored product recommendations.

Moving beyond diagnostics, AI-guided formulation integrates dermatologic data with ingredient property analysis to optimize cosmetic development, enabling personalized products that address diverse consumer profiles. Case studies will highlight innovations where AI has accelerated development pipelines, enhanced product safety and efficacy, and delivered tangible benefits to consumers.

The session will also address the ethical, regulatory, and technical challenges inherent in deploying AI within dermatology, including privacy, bias, and evolving compliance frameworks. Finally, future perspectives will be shared on real-time monitoring, wearable technology integration, and the potential of AI to redefine skin longevity and consumer-centric skincare.

By combining scientific rigor with technological innovation, AI offers an unprecedented opportunity to advance dermatologic care and reshape the beauty industry for a more inclusive and effective future