Ethical challenges in EngSurf-Twin

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The rapid advancement of engineered surfaces for emerging technologies has been focused in a new era of innovation and potential benefits across various industries. In general many reactions, mechanisms occurs on the surfaces which are often designed at the nanoscale, possess unique properties that enable groundbreaking applications in fields such as electronics, healthcare, energy, materials science and so on. While the promise of these technologies is undeniable, their development and deployment also bring forth a host of ethical challenges that should have been required careful consideration.

The multifaceted ethical dilemmas associated with research and innovation in engineered surfaces has also been considered in the EngSurf-twin project. The implications of intellectual property rights, open access to knowledge, and the equitable distribution of benefits is being to pursued. Moreover, environmental sustainability, as the production and disposal of engineered surfaces may have adverse ecological impacts need to be concerned. Additionally, the ethical dimension of safety and potential risks in utilizing engineered surfaces is scrutinized, highlighting the need for robust regulatory frameworks and responsible research practices. Privacy concerns arise as these surfaces enable enhanced data collection and surveillance capabilities, raising questions about the ethical boundaries of data usage and consent.

Furthermore, broader societal implications, including the potential exacerbation of existing inequalities and the ethical challenges tied to the dual-use nature of some engineered surfaces, have been also adressed.