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Synthesis of New Bifunctional Monomers for Use in Migration-Stable Polymers

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Iodonium salts, which are well established photo initiators, offer a plethora of possible structures to investigate their suitability in enhancing polymer longevity.

To achieve this, two main pathways may be followed: utilizing either covalent or non-covalent interactions. Covalent interactions can be introduced through phenyl-containing monomers which may be incorporated in the iodonium salt structure. In the case of non-covalent interactions, one or both phenyl rings can be modified with side chains that promote strong intermolecular forces, such as dipole-dipole interactions. To facilitate this, a library of Koser's salts and simple iodonium salts has been created. This collection can be used to synthesize new iodonium salts incorporating monomers or functional groups that, after dissociating, exhibit robust intermolecular interactions—such as π -stacking, fluorophilicity, dipole-dipole interactions, or halogen-halogen interactions—making diffusion out of the polymer matrix negligible. The specific type of functional group needed depends on the monomer(s) selected for polymerization and is therefore variable.