Novel synthetic methodology has been developed and applied to the synthesis of a series of long wavelength absorbing triarylsulfonium salt photoacid generators. Arylsulfoxides can be condensed with aromatic compounds bearing electron-donating groups in the presence of Eaton's reagent to give the desired triarylsulfonium salts in high yields. Of particular interest in this study were triarylsulfonium salts incorporating thioxanthone and thianthrene moieties. Several typical examples (I-IV) are depicted below.

$$Ar \longrightarrow S=O + Ar-H \xrightarrow{CH_3SO_3H} \xrightarrow{KPF_6} Ar \xrightarrow{Ar} PF_6$$

$$CI \longrightarrow S^+-Ph \longrightarrow S^+-P$$

The novel photoacid generators have many immediate and potential applications but are especially attractive for use in microelectronic photoresists, graphic arts imaging and in stereolithography.