Electronic Supplementary Information

Application of novel triarylmethane dyes having thienyl, thieno[3,2-b]thienyl, and dithieno[3,2-b:2',3'-d]thienyl rings as auxochrome to superacid pH sensor

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Figure S1. $^1$H NMR of 5-OH.
Figure S1’. $^1$H NMR of 5-OH.
Figure S2. $^1$H NMR of 6-OH.
Figure S2’. $^1$H NMR of 6-OH.
Figure S3. $^1$H NMR of 7-OH.
Figure S3’. $^1$H NMR of 7-OH.
Figure S4. $^1$H NMR of 5-BF$_4$.
Figure S4’. $^1$H NMR of 5-BF$_4$.
Figure S5. $^1$H NMR of 5-CF$_3$SO$_3$.
Figure S5’. $^1$H NMR of 5-CF$_3$SO$_3$.
Figure S6. $^1$H NMR of 5-(C$_4$F$_9$SO$_2$)$_2$N.
Figure S6’. $^1$H NMR of 5-(C$_4$F$_9$SO$_2$)$_2$N.
Figure S7. $^1$H NMR of 6-(C$_4$F$_9$SO$_2$)$_2$N.
Figure S7’. $^1$H NMR of 6-(C$_4$F$_9$SO$_2$)$_2$N.
Figure S8. $^1$H NMR of 7-(C$_4$F$_9$SO$_2$)$_2$N.

Figure S8’. $^1$H NMR of 7-(C$_4$F$_9$SO$_2$)$_2$N.

Figure S9. $^1$H NMR of CV-(C$_4$F$_9$SO$_2$)$_2$N.

Figure S9’. $^1$H NMR of CV-(C$_4$F$_9$SO$_2$)$_2$N.

Figure S10. $^1$H NMR of 5-OEt.

Figure S10’. $^1$H NMR of 5-OEt.

Figure S10”. $^1$H NMR of 5-OEt.
Figure S1. $^1$H NMR of 5-OH.

Figure S1’. $^1$H NMR of 5-OH.
Figure S2. $^1$H NMR of 6-OH.

Figure S2'. $^1$H NMR of 6-OH.
Figure S3. $^1$H NMR of 7-OH.

Figure S3'. $^1$H NMR of 7-OH.
Figure S4. $^1$H NMR of 5-BF$_4$.

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Figure S5. $^1$H NMR of 5-CF$_3$SO$_3$. 

Figure S5'. $^1$H NMR of 5-CF$_3$SO$_3$. 
Figure S6. $^1$H NMR of 5-(C$_4$F$_9$SO$_2$)$_2$N.

Figure S6’. $^1$H NMR of 5-(C$_4$F$_9$SO$_2$)$_2$N.
Figure S7. $^1$H NMR of 6-(C$_4$F$_9$SO$_2$)$_2$N.

Figure S7'. $^1$H NMR of 6-(C$_4$F$_9$SO$_2$)$_2$N.
Figure S8. $^1$H NMR of 7-($C_4F_9SO_2)_2N$.

Figure S8'. $^1$H NMR of 7-($C_4F_9SO_2)_2N$. 
Figure S9. $^1$H NMR of $\text{CV-}(\text{C}_4\text{F}_9\text{SO}_2)_2\text{N}$. 

Figure S9'. $^1$H NMR of $\text{CV-}(\text{C}_4\text{F}_9\text{SO}_2)_2\text{N}$. 
Figure S10. $^1$H NMR of 5-OEt.

Figure S10’. $^1$H NMR of 5-OEt.

Figure S10”. $^1$H NMR of 5-OEt.