

A redesign of light-driven rotary molecular motors

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Electronic Supplementary Information

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¹H and ¹³C NMR spectra for stable *cis*-3

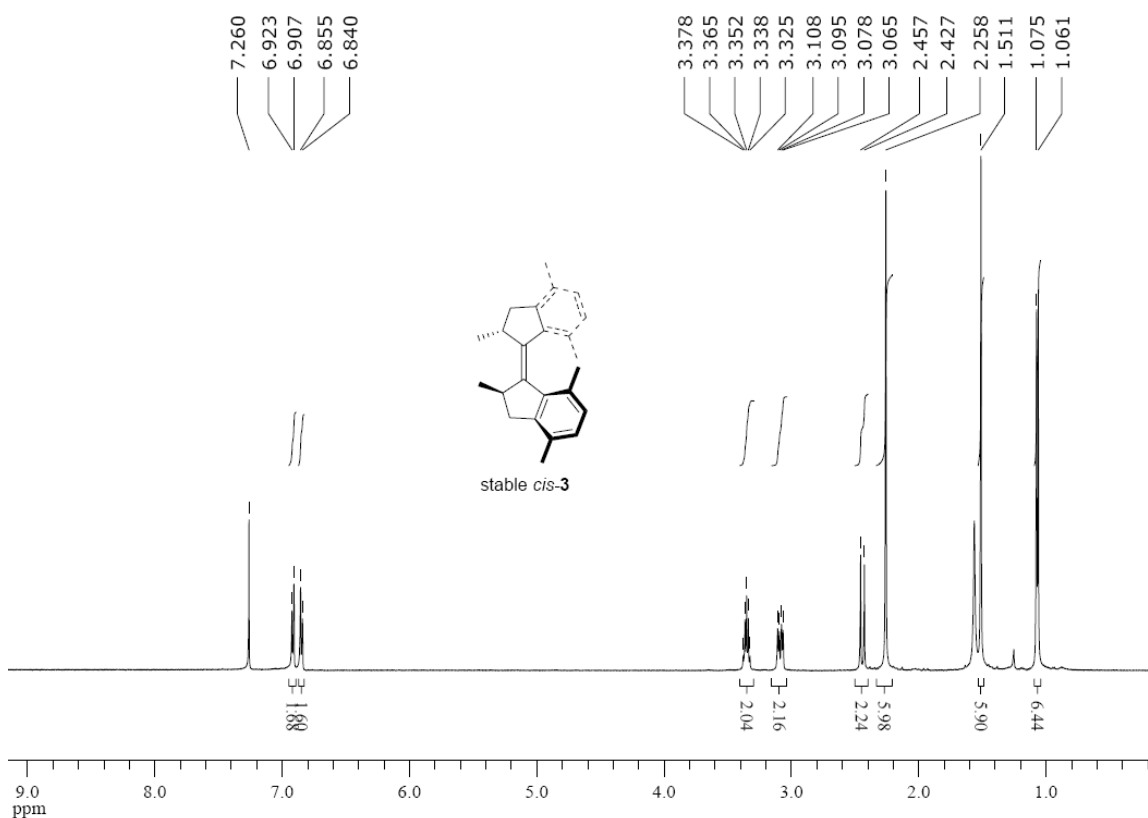


Figure 1. 500 MHz ¹H NMR spectrum of stable *cis*-3 in CDCl₃.

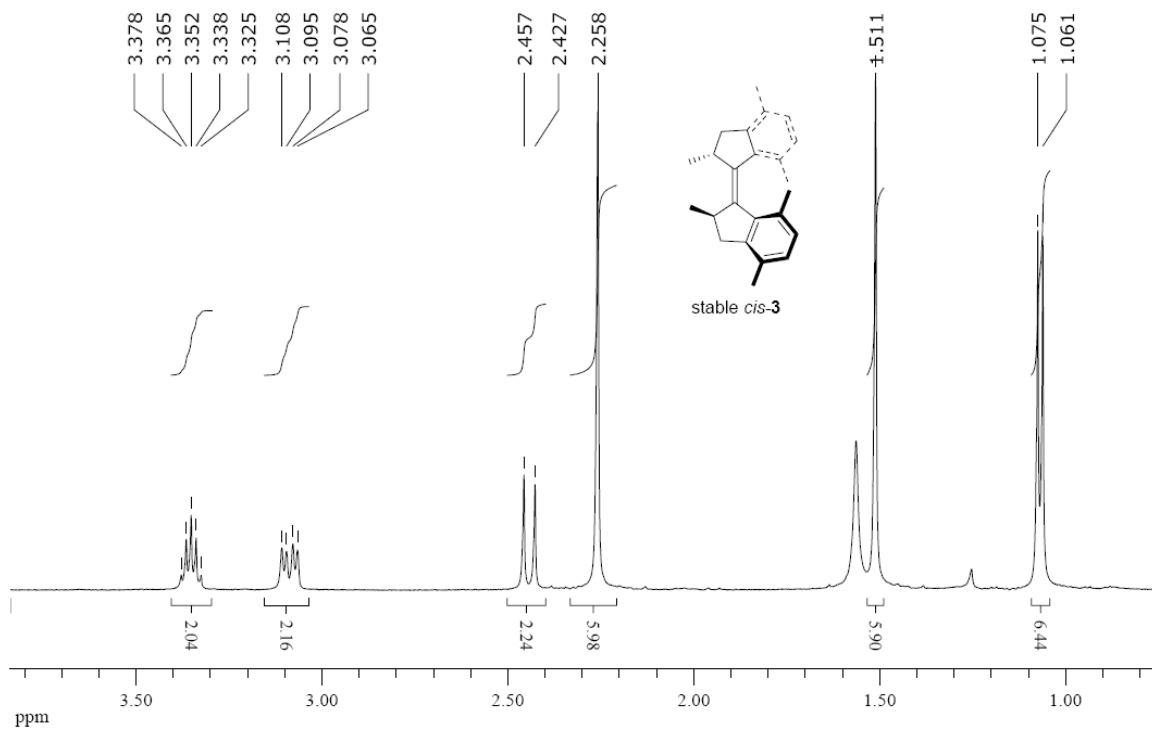


Figure 2. 500 MHz ^1H NMR spectrum (expansion) of *stable cis-3* in CDCl_3 .

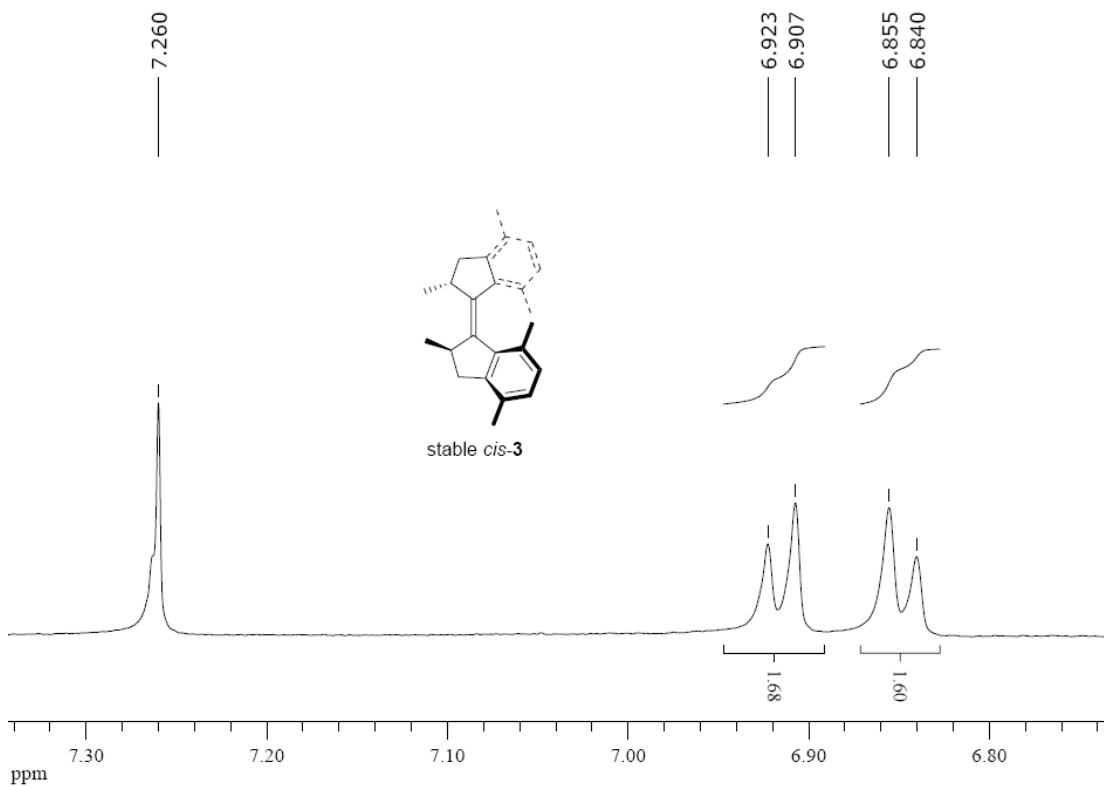


Figure 3. 500 MHz ^1H NMR spectrum (expansion) of *stable cis-3* in CDCl_3 .

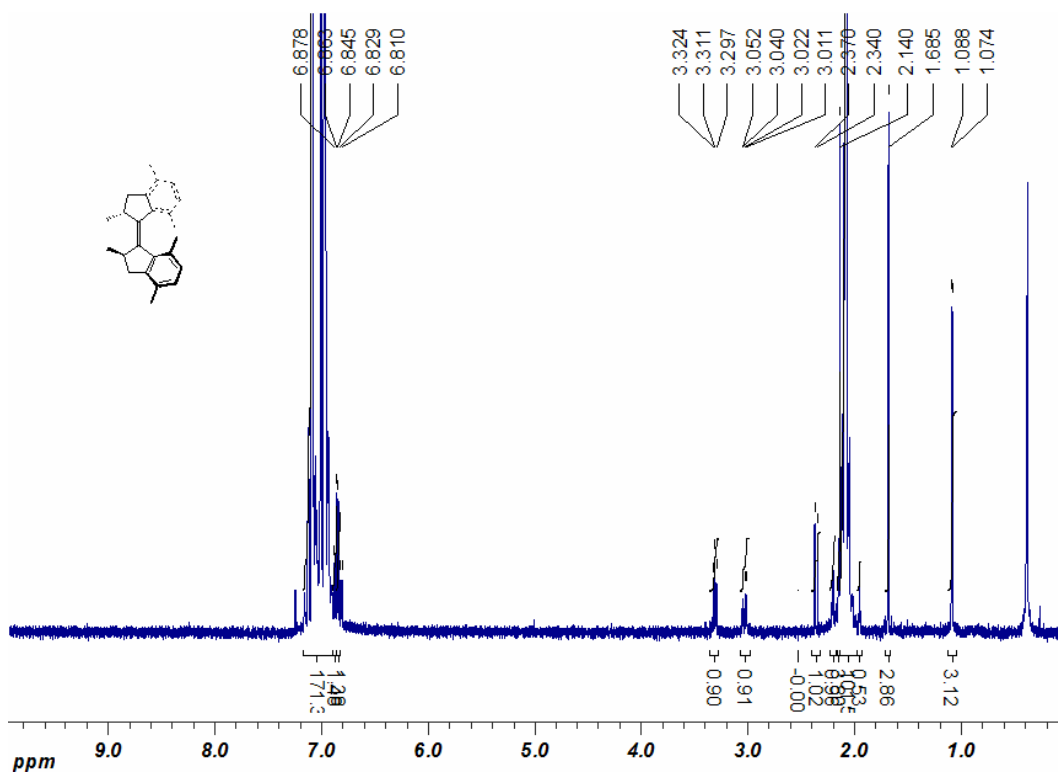


Figure 4. ^1H NMR spectrum of *cis-3* in toluene- D_8 .

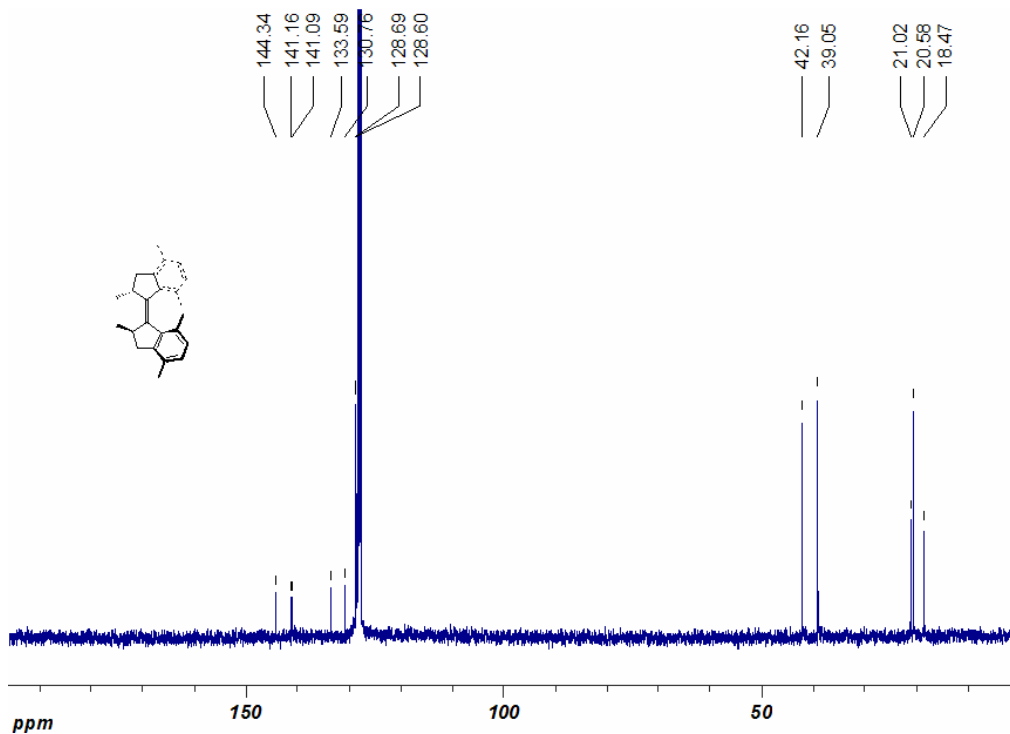


Figure 5. ^{13}C NMR spectrum of *cis-3* in benzene- D_6 .

^1H and ^{13}C NMR spectra for stable *trans*-3

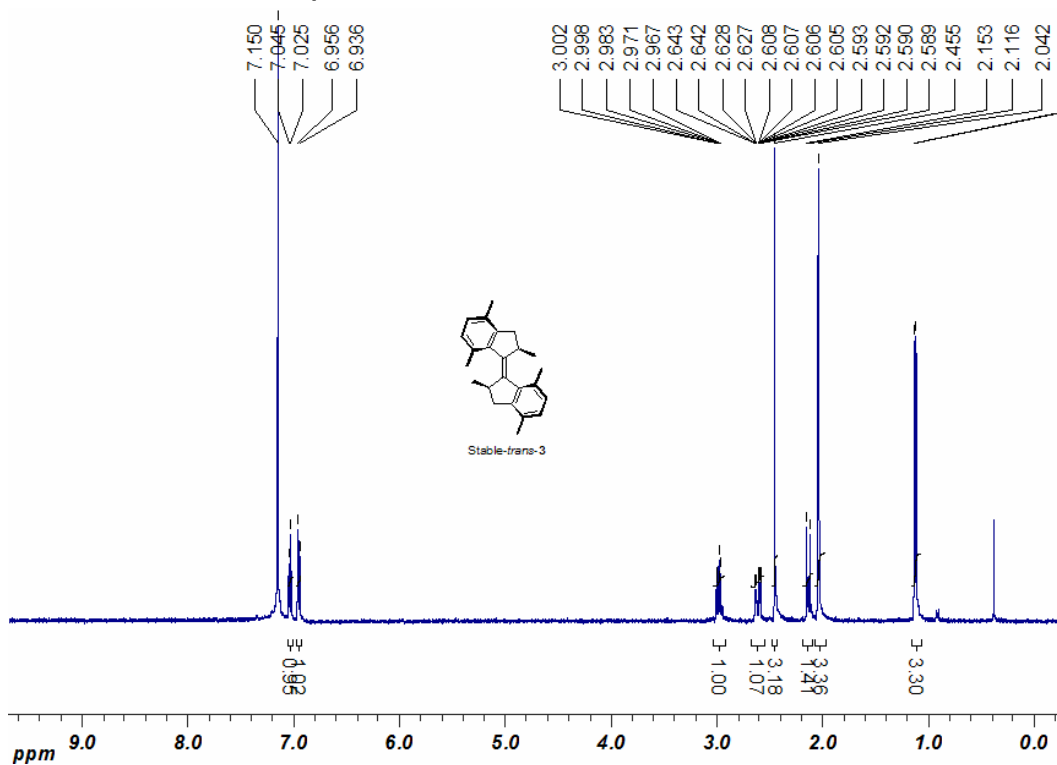


Figure 6. ^1H NMR spectrum of *trans*-3 in C_6D_6 .

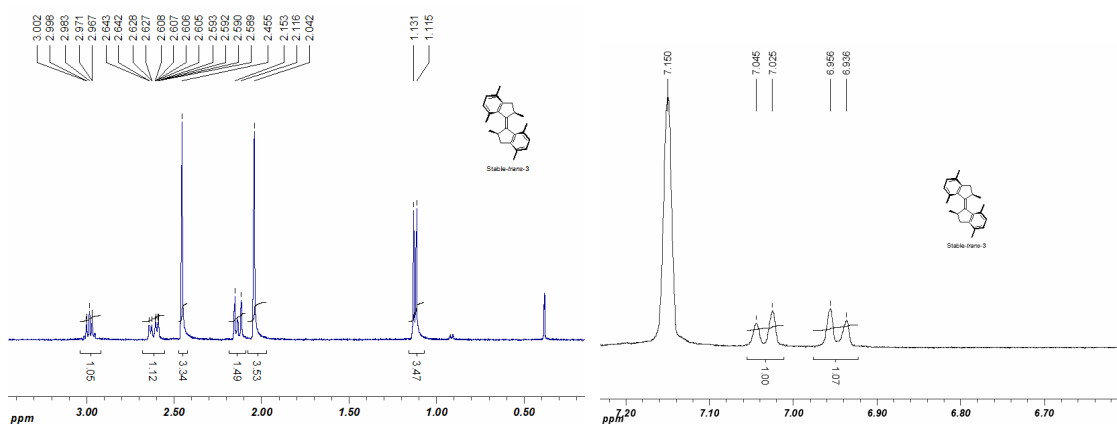


Figure 7. Expansions of ^1H NMR spectrum of *trans*-3 in C_6D_6 .

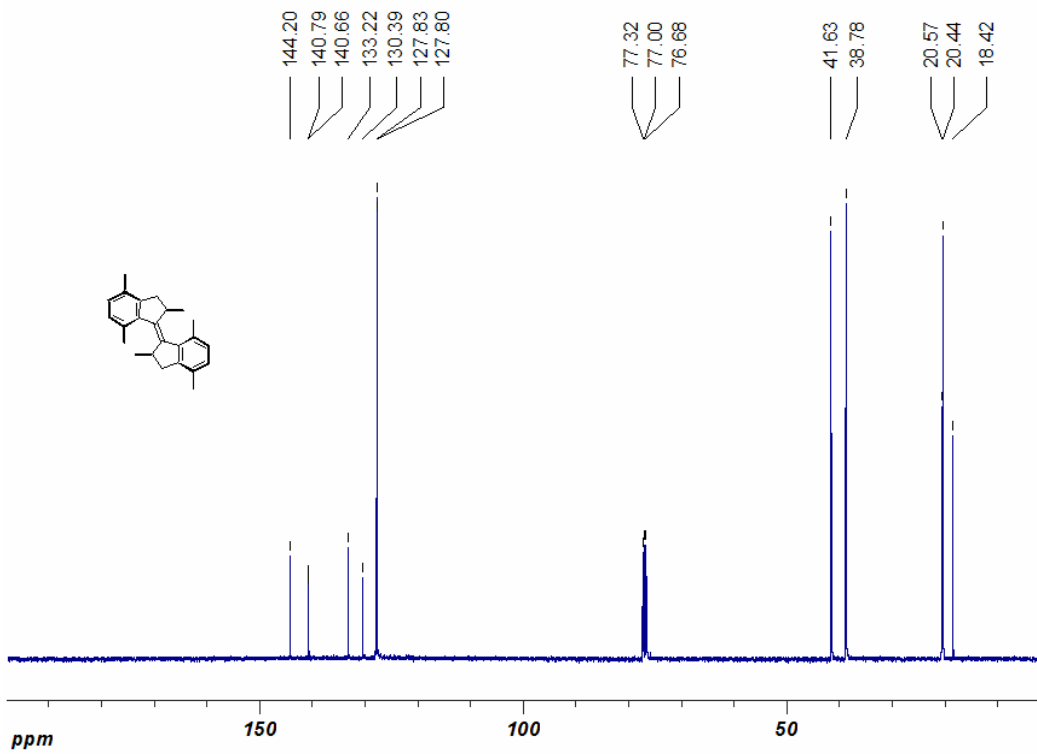


Figure 8. ^{13}C NMR spectrum of *trans-3* in CDCl_3 .

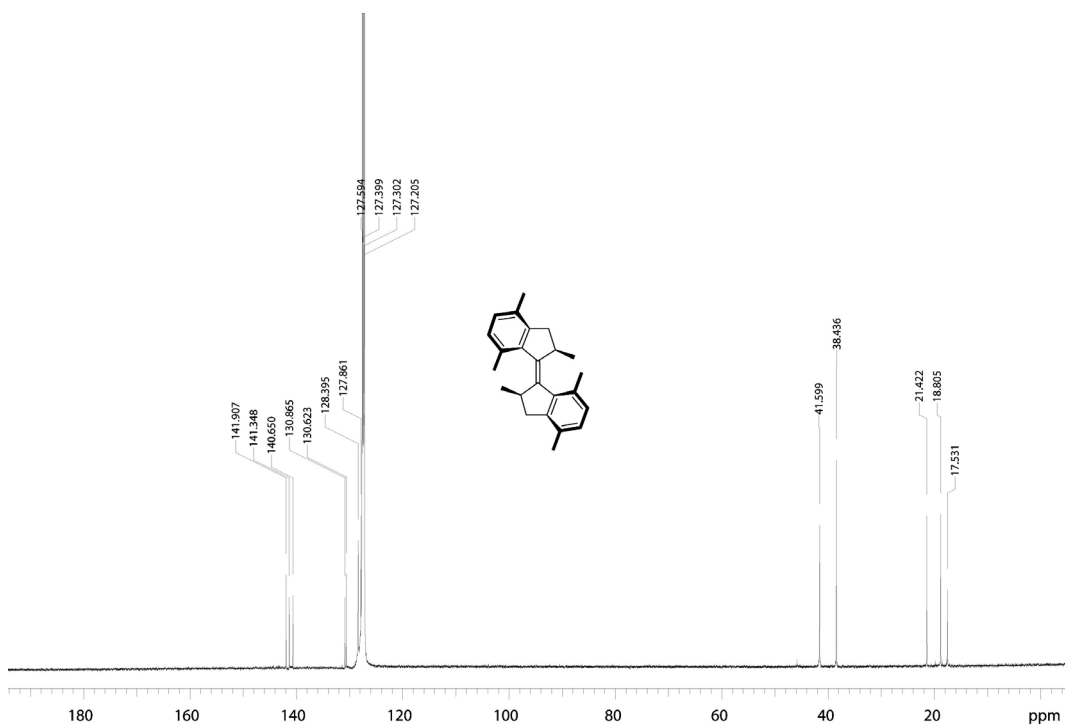


Figure 9. ^{13}C NMR spectrum of *trans-3* in C_6D_6 .

^1H and ^{13}C NMR spectra for stable **6**

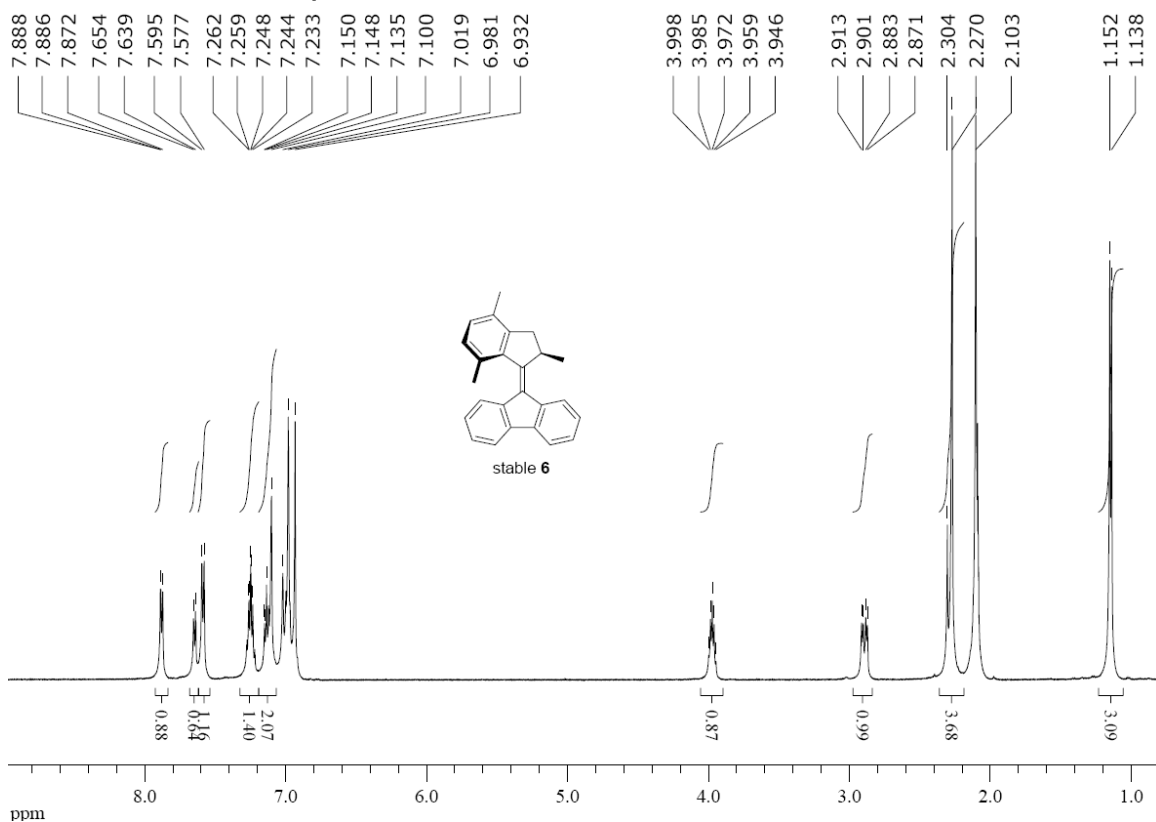


Figure 10. 500 MHz ^1H NMR spectrum of stable **6** in toluene- D_8 .

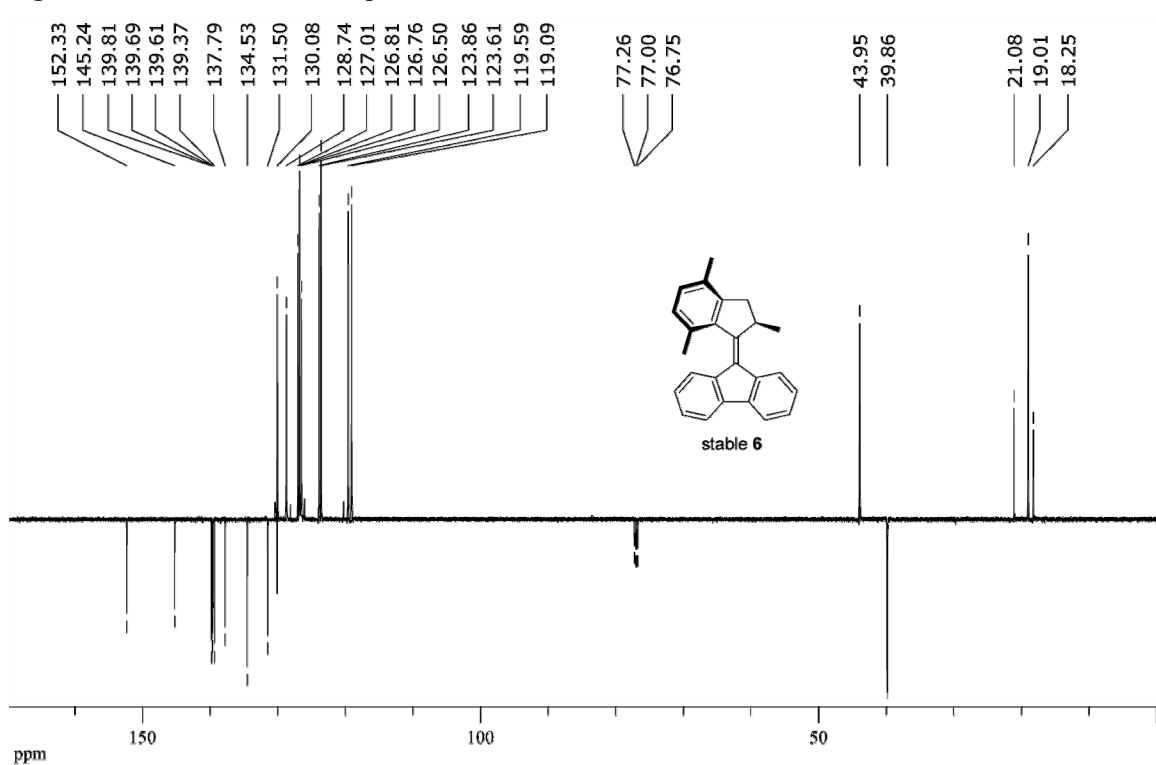


Figure 11. 100 MHz ^{13}C NMR spectrum of stable **6** in CDCl_3 .

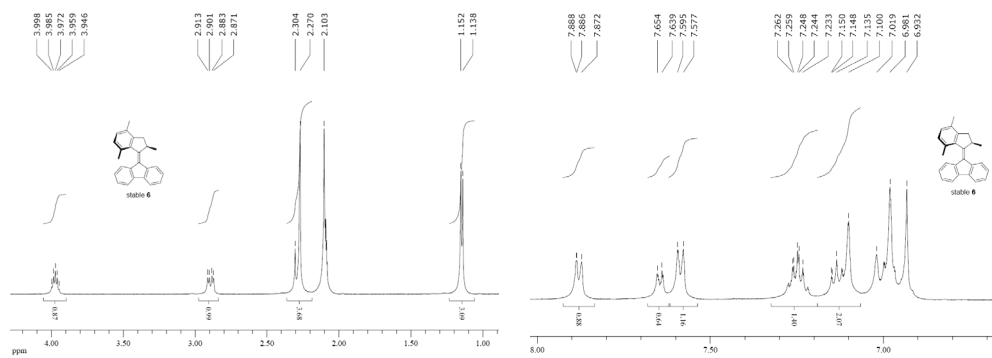


Figure 12. Expansion of 500 MHz ^1H NMR spectrum of stable **6** in toluene- d_8 .

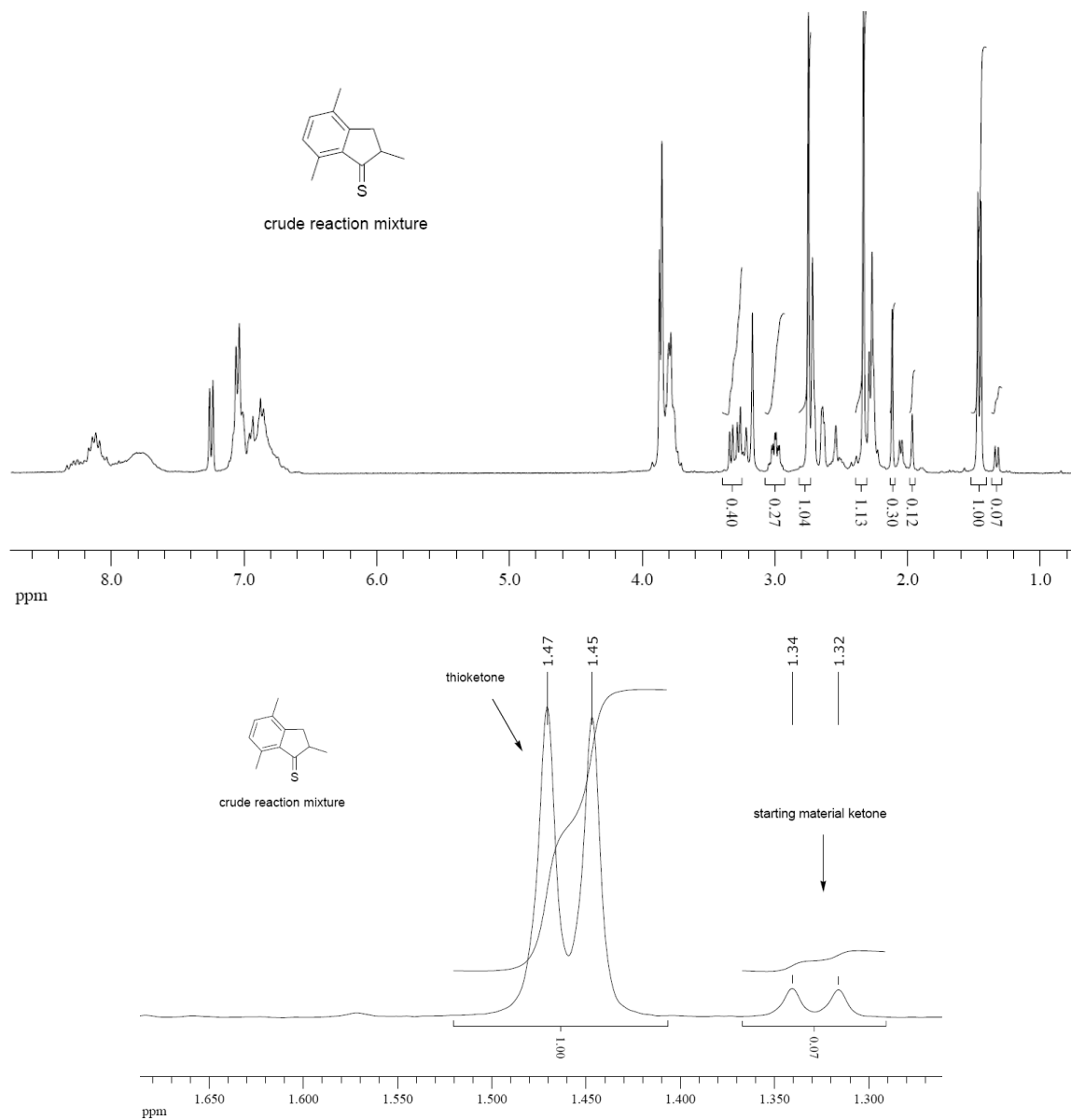


Figure 13. 400 MHz ^1H NMR spectrum of crude thioketone **7** in CDCl_3 (top) and expansion of the absorption from the stereogenic methyl groups of the starting material and product (bottom).

^1H NMR spectra for PSS_{313nm} of stable *cis*-3 and unstable *trans*-3

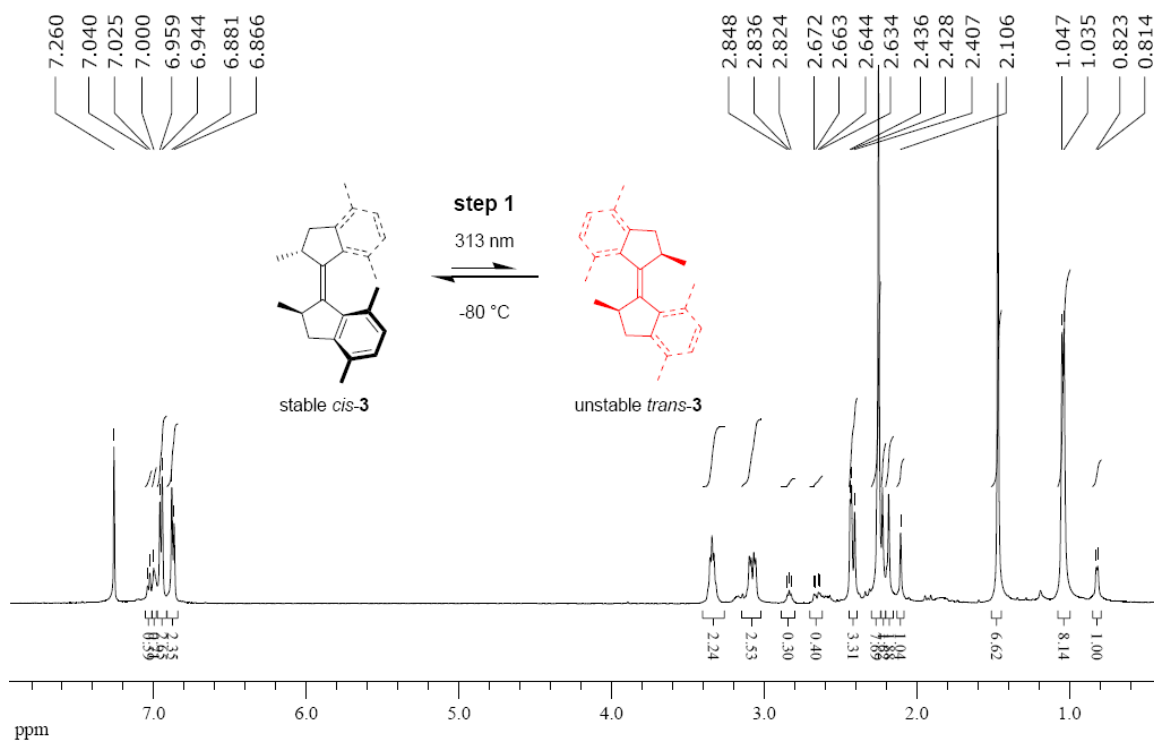


Figure 14. ^1H NMR spectrum (-80°C) of PSS₃₁₃ of stable *cis*-3 and unstable *trans*-3 in CDCl_3 . Some peaks have shifted slightly compared too the corresponding spectrum at rt.

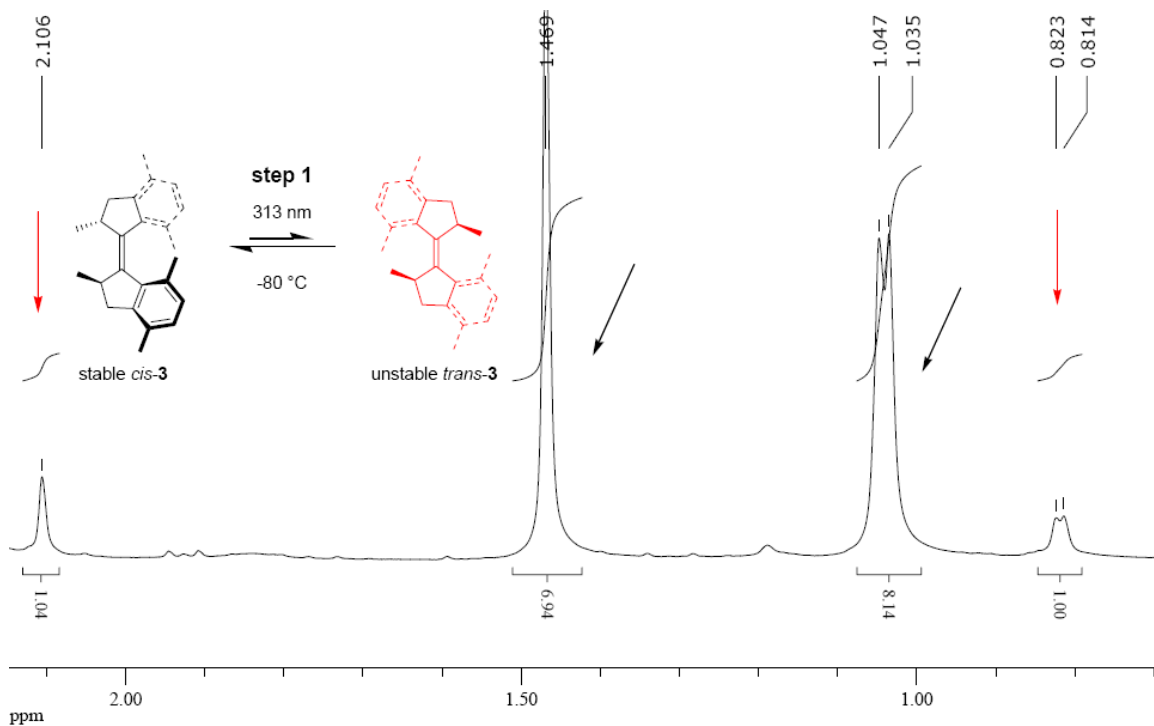


Figure 15. ^1H NMR spectrum (-80°C) of PSS₃₁₃ of stable *cis*-3 and unstable *trans*-3 (expansion) in CDCl_3 .

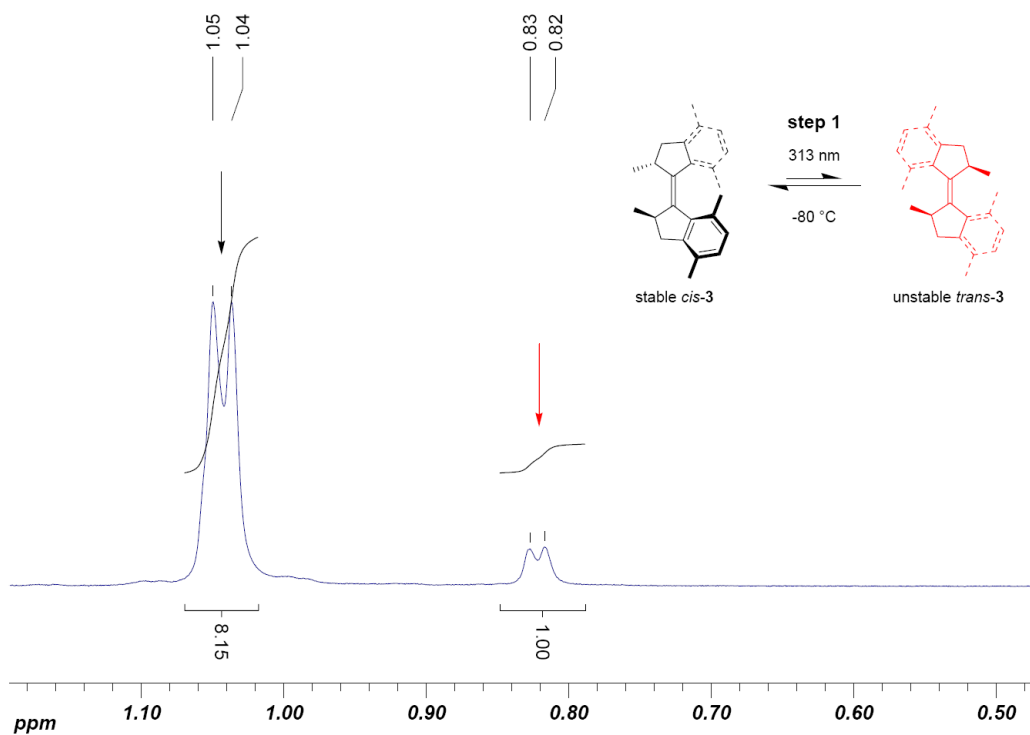


Figure 16. ^1H NMR spectrum (-80°C) of PSS₃₁₃ of stable *cis*-3 and unstable *trans*-3 (expansion).

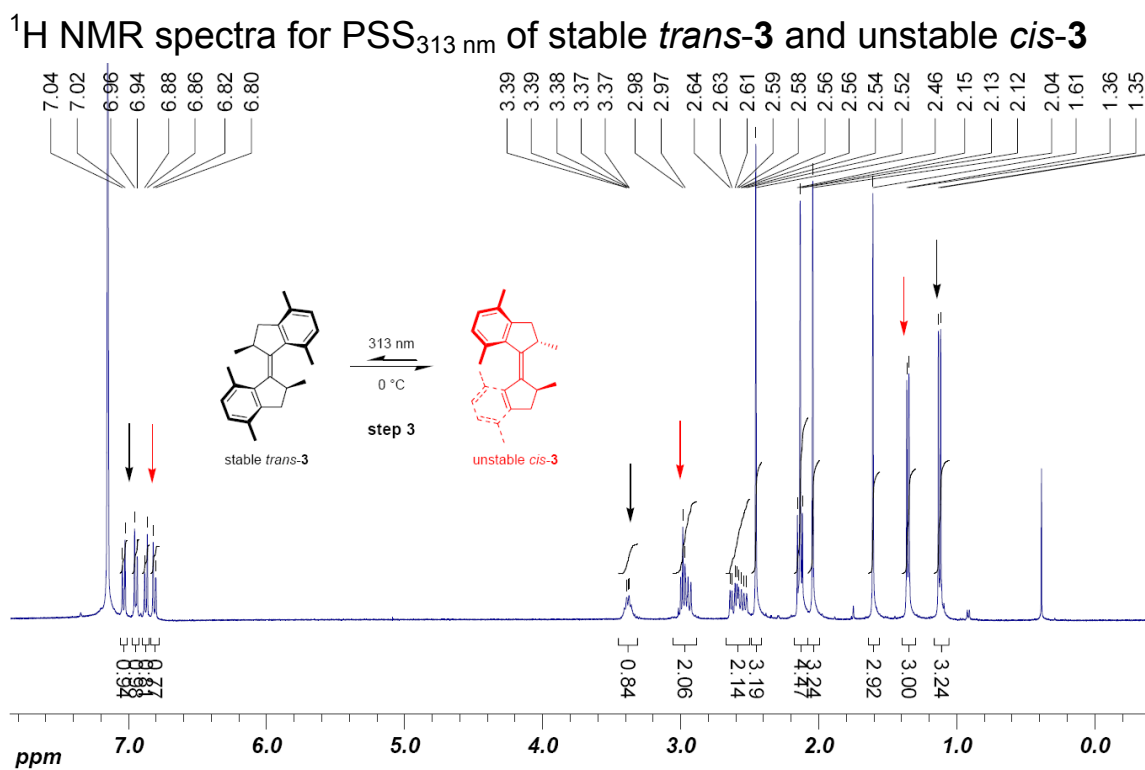


Figure 17. ^1H NMR spectrum (400MHz, rt, C_6D_6) of PSS₃₁₃ of stable *trans*-3 and unstable *cis*-3.

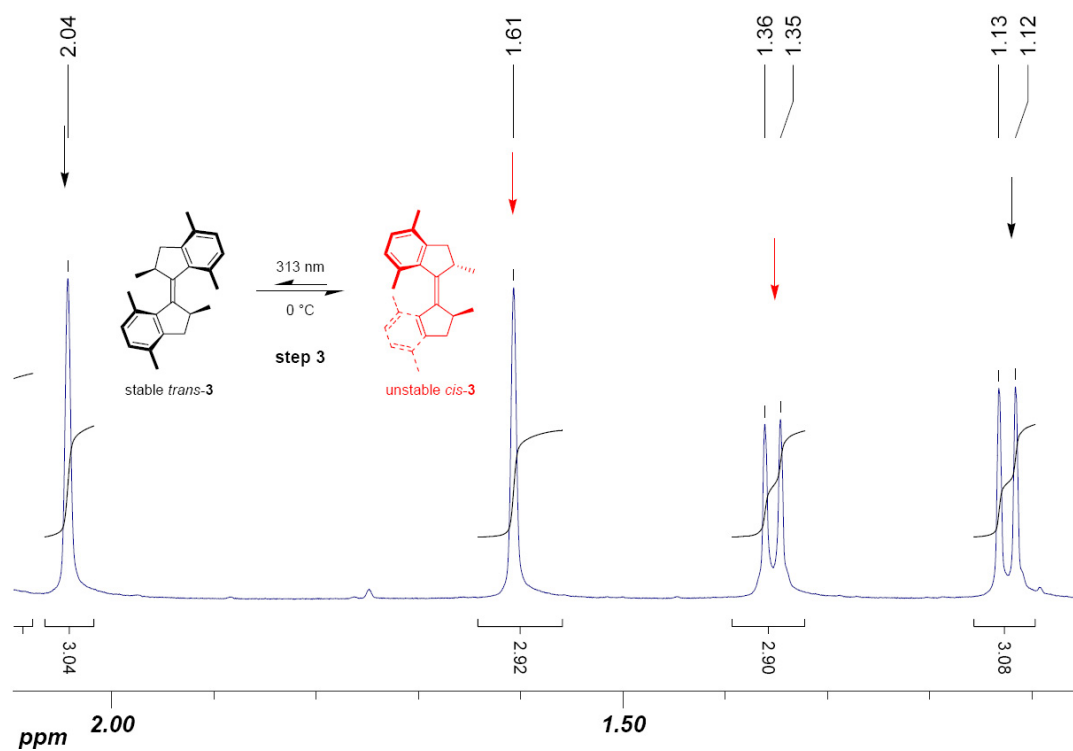


Figure 18. ^1H NMR spectrum (rt, C_6D_6) of PSS₃₁₃ of stable *trans*-3 and unstable *cis*-3 (expansion).

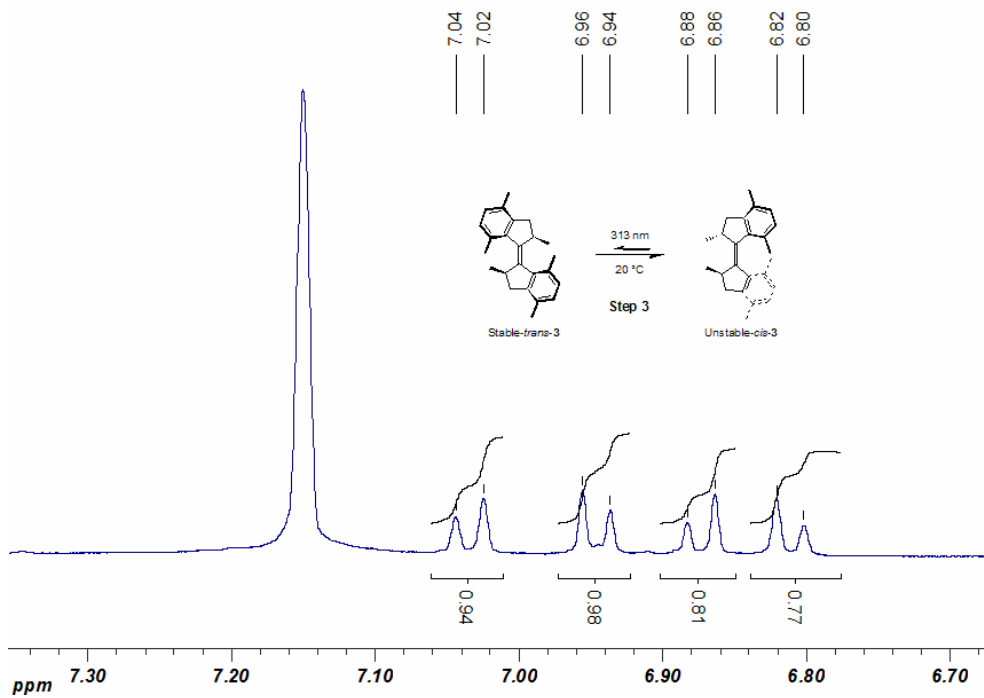


Figure 19. ^1H NMR spectrum (rt, C_6D_6) of PSS₃₁₃ of stable *trans*-3 and unstable *cis*-3 (expansion).

^1H NMR (500 MHz) spectrum for PSS_{365nm} containing stable **6** and unstable **6**

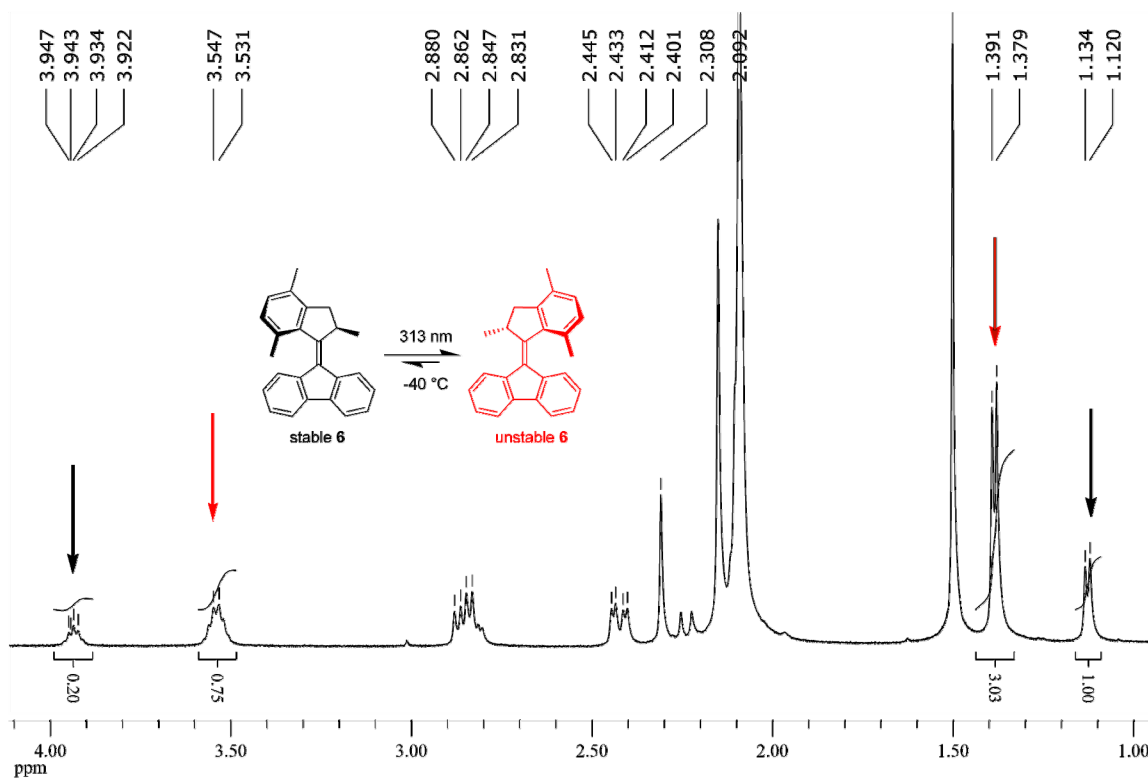


Figure 20. 500MHz ^1H NMR spectrum (toluene-D₈) of PSS (313 nm) of **6**, with black and red arrows indicating key absorptions of stable-**6** and unstable-**6**, respectively.