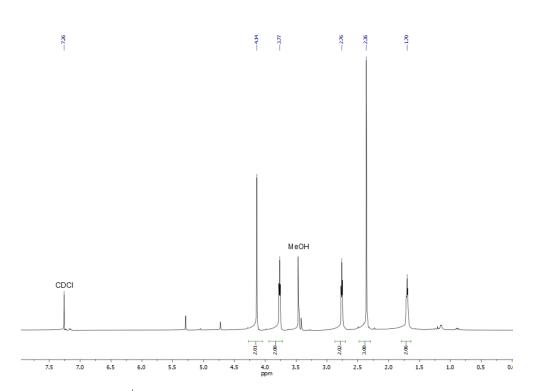
Symmetry controlled excited state dynamics – Supporting Information

Max D.J. Waters, Anders B. Skov, Martin A.B. Larsen, Christian M. Clausen, Peter M. Weber, Theis I. Sølling\*



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Figure  $1^{\dagger}$ : Proton NMR spectrum of N-methyl isomorpholine (NMI)

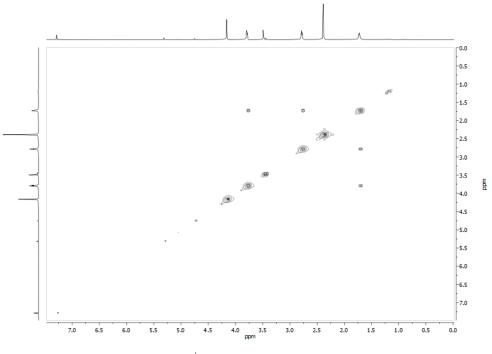


Figure  $\mathbf{2}^{\dagger} {:}~\mathrm{COSY}~\mathrm{spectrum}~\mathrm{of}~\mathrm{NMI}$ 

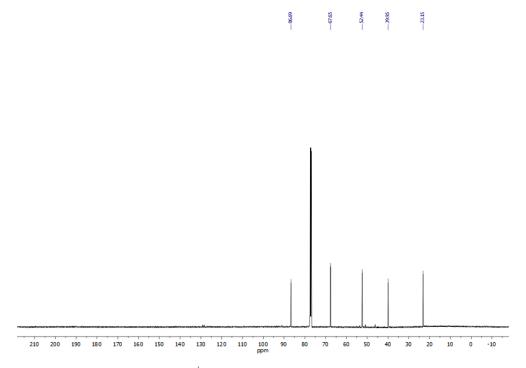
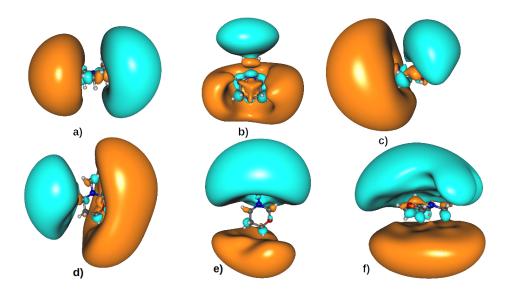


Figure  $\mathbf{3}^\dagger {:}\ \mathrm{Carbon}\ \mathrm{NMR}\ \mathrm{spectrum}\ \mathrm{of}\ \mathrm{NMI}$ 



**Figure 4<sup>†</sup>:** 3p molecular orbitals for NMM and NMI where a) is the  $3p_x$  of NMM, b) is the  $3p_y$  of NMM, c) is the  $3p_y$  of NMM, d) is the  $3p_x$  of NMI, e) is the  $3p_y$  of NMI and f) is the  $3p_z$  of NMI.