

# The Nature of Interactions and UV Induced Response within $\alpha$ -Zirconium Phosphate Intercalation Compounds with Azobenzenes

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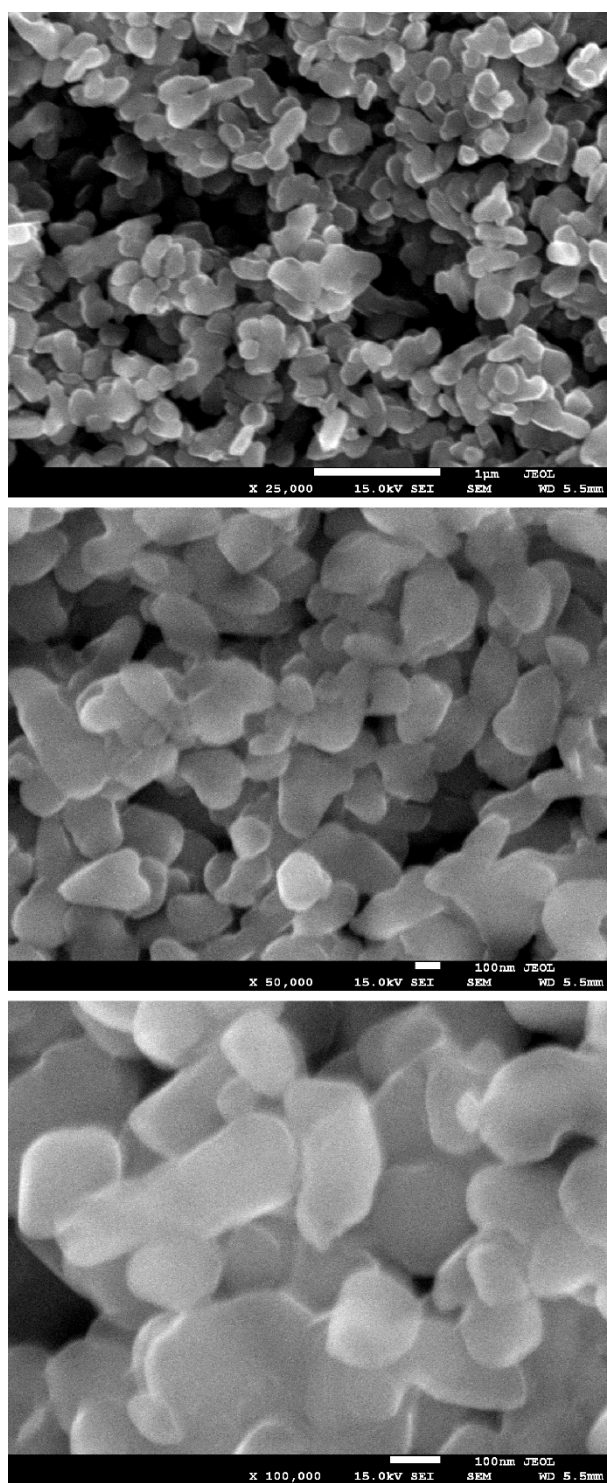
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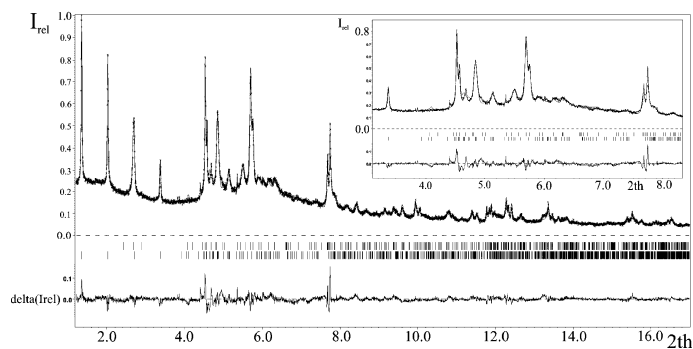
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**Table S1.** Selected interatomic distances in compound  $Zr_{0.5}(HPO_4)C_{12}N_3H_{11}$

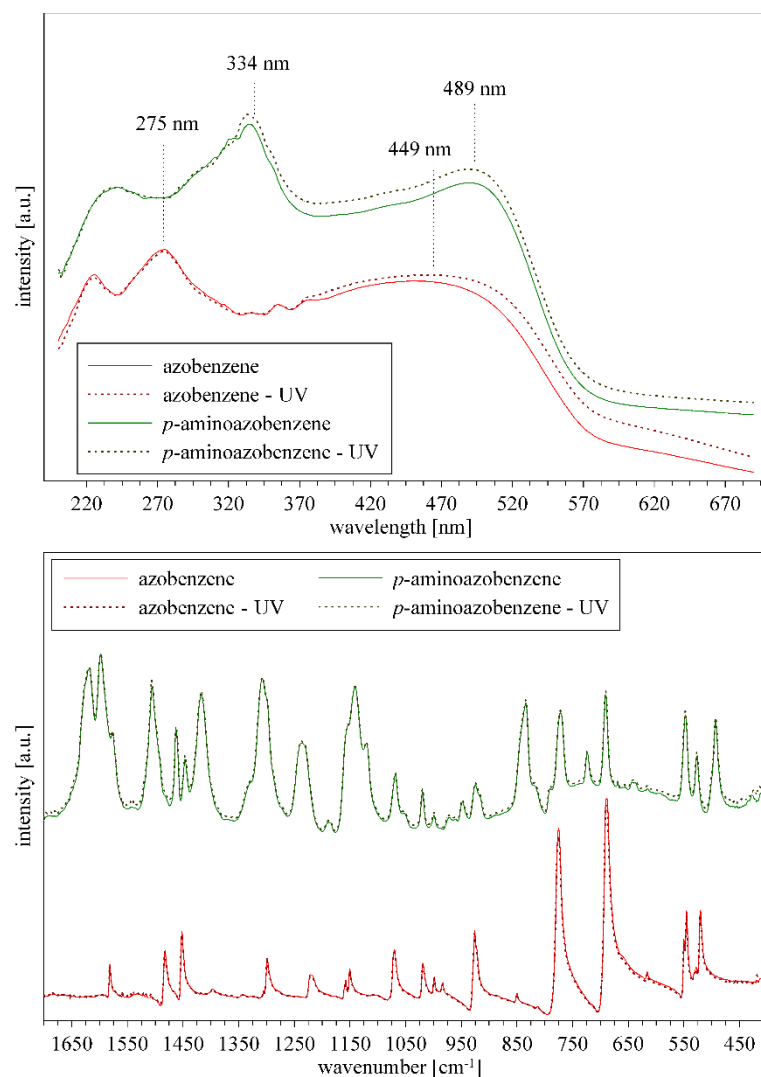
| Atom1<br>(sym. code)     | Atom2<br>(sym. code) | distance (Å) |
|--------------------------|----------------------|--------------|
| Octahedral coordination  |                      |              |
| Zr                       | O1                   | 2.106(14)    |
| Zr                       | O2 (-x,y+1/2,-z+1/2) | 2.10(3)      |
| Zr                       | O3 (-x,y-1/2,-z+1/2) | 1.90(3)      |
| Zr                       | O1(-x,-y+2,-z)       | 2.106(14)    |
| Zr                       | O2 (x,-y+3/2,z-1/2)  | 2.10(3)      |
| Zr                       | O3 (x,-y+5/2,z-1/2)  | 1.90(3)      |
| Tetrahedral coordination |                      |              |
| P                        | O1                   | 1.506(17)    |
| P                        | O2                   | 1.50(3)      |
| P                        | O3                   | 1.50(3)      |
| P                        | O4                   | 1.509(13)    |
| Inorganic part           |                      |              |
| C2                       | C3                   | 1.39(6)      |
| C3                       | C4                   | 1.39(5)      |
| C4                       | C5                   | 1.39(3)      |
| C5                       | C6                   | 1.39(6)      |
| C6                       | C7                   | 1.39(4)      |
| C7                       | C2                   | 1.39(3)      |
| C5                       | N8                   | 1.45(8)      |
| N8                       | N9                   | 1.28(4)      |
| N9                       | C10                  | 1.46(4)      |
| C10                      | C11                  | 1.39(5)      |
| C11                      | C12                  | 1.39(5)      |
| C12                      | C13                  | 1.39(4)      |
| C13                      | C14                  | 1.39(6)      |
| C14                      | C15                  | 1.39(5)      |
| C15                      | C10                  | 1.39(4)      |
| C13                      | N16                  | 1.45(5)      |



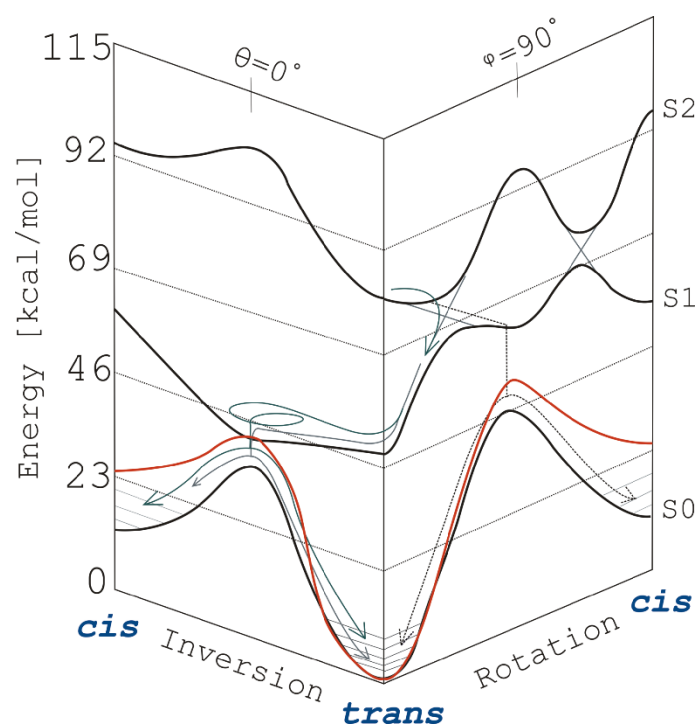
**Figure S1.** The SEM images of pure ZrP sample.



**Figure S2.** Synchrotron generated XRD pattern and the Rietveld plot for the ZpA sample.



**Figure S3.** The UV-Vis (upper graph) and FTIR (lower graph) spectra of crystalline Az and pAz before and after UV irradiation.



**Figure S4.** Scheme of the trans–cis isomerization process after  $\pi\pi^*$  excitation.



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