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**SOLID STATE NMR AND DIATOMS: PROBING THE INTERFACES**

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**INTRODUCTION**

Whole-cell, SDS-treated and H$_2$O$_2$-treated samples were isotopically enriched with $^{29}$Si, $^{13}$C/$^{31}$Si/$^4$N and $^{15}$C/$^4$N, respectively. While SDS is used to clean the frustule, H$_2$O$_2$ treatment seems to be much more aggressive, probably leading to partial dissolution-recrystallization.

**CHEMICAL TREATMENT**

While a lot of work is still needed to fully understand diatoms frustule interface, solid-state NMR appears to be a powerful toolbox. Indeed, this technique is able to selectively probe either mobile or rigid species at a very local scale. Varying methods, species proximity can be checked and connectivity evaluated.

**MOBILE SPECIES**

Liquid-state-inspired NMR experiments mainly highlight the most mobile species: unsaturated lipids. Nevertheless ENSY exp. shows spin diffusion between two broad protons regions.

**SDS-TREATED SAMPLE**

**RIGID SPECIES**

Solid-state NMR experiments allow to probe another part of the sample: the rigid one. Playing with the selected nuclei, spatial proximities can be assessed.

**CONCLUSION AND REFERENCES**