

Highlights

- Dentin treated with Zn-Dex-NPs showed low levels of accumulated energies over time.
- Dex-NPs and Zn-Dex-NPs in conditioned dentin promoted functional remineralization.
- Dentin treated with Zn-Dex-NPs showed the highest crystallinity and low amorphization.
- Dentin with Zn-Dex-NPs exhibited less spaced random and compacted nanocrystals.