

tifactual decrease of ρ with the depth within the tendon. To address these problems, we derived a method to process polarization-resolved SHG data and we successfully retrieved relevant optical parameters in rat-tail tendon. This method is applicable to any anisotropic sample that exhibits SHG signals, including other collagenous tissues and presumably skeletal muscles. It may also be generalized to other nonlinear optical processes, that is 2PEF, THG, CARS or SRS polarization-resolved microscopies. Altogether, our work proves unambiguously that uncorrecting for polarization distortion results in misleading determination of the tensorial nonlinear response in anisotropic thick tissues.

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