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ABSTRACT

10 Proof for an Infinite Series by Śaṅkara in his Kriyākramakarī, Dr. Vanishri Bhat, Bengaluru

Kriyākramakarī is a profound work in the form of a commentary on Līlāvatī by Śaṅkara Vāriyar which was completed by Nārāyaṇa. This commentary — in simple Sanskrit prose interspersed with hundreds of verses in the form of saṃgrahaślokas — was authored when the Kerala school of mathematicians, pioneered by Mādhava (14th cent.), had made path-breaking discoveries in the field of mathematical analysis. Naturally, Śaṅkara and Nārāyaṇa in their commentary, besides providing a mere explanation to the verses of Bhāskara, also endeavour to elaborate on a particular result that mirrors the understanding that has emerged around their period of time. They also provide the rationale behind various results given by Bhāskara, in the light of the new discoveries that have been made in the Kerala school since the time of Mādhava. Besides providing additional examples, the commentator on several occasions presents alternative methods and approaches that can be taken for solving the same problems.

In my presentation I will discuss a proof for $\pi \backslash 4$ series more popularly known in the mathematical literature as the Gregory-Leibniz series. During the course of the proof, Śaṅkara elaborately discusses a procedure for converting an algebraic expression into an infinite series in order to achieve a spectacular simplification by reducing an expression into a desired form.