

**LETTER TO THE EDITOR:
THE HISTORY OF A SERIES RELATED TO THE POISSON
DISTRIBUTION**

HELMUT PRODINGER

In [2] the sequence $a_n = e^{-n} \sum_{i=0}^n \frac{n^i}{i!}$ is studied. Later, it was pointed out [3] that this quantity is related to the Poisson distribution.

However this sequence has an extremely rich and interesting history, for which we refer to [1].

It is related to Ramanujan's famous conjecture that

$$\frac{1}{2}e^n = 1 + \frac{n}{1!} + \frac{n^2}{2!} + \cdots + \frac{n^n}{n!}\theta, \quad \text{where } \theta \text{ lies between } \frac{1}{2} \text{ and } \frac{1}{3},$$

which was eventually proved in [1].

REFERENCES

- [1] P. Flajolet, P. Grabner, P. Kirschenhofer, and H. Prodinger. On Ramanujan's $Q(n)$ -function. *Journal of Computational and Applied Mathematics*, 58:103–116, 1995.
- [2] Z. László and Z. Vörös. On the limit of a sequence. *Acta Math. Acad. Paedagog. Nyházi. (N.S.)*, 15:35–40 (electronic), 1999.
- [3] N. Surulescu. On some sequences derived from the Poisson distribution. *Acta Math. Acad. Paedagog. Nyházi. (N.S.)*, 18:7–12 (electronic), 2002.

HELMUT PRODINGER, THE JOHN KNOPFMACHER CENTRE FOR APPLICABLE ANALYSIS AND NUMBER THEORY, SCHOOL OF MATHEMATICS, UNIVERSITY OF THE WITWATERSRAND, P. O. WITS, 2050 JOHANNESBURG, SOUTH AFRICA

E-mail address: helmut@staff.ms.wits.ac.za