

ZINELAABIDINE LATREUCH (joint work with M. A. ZEMIRNI and I. LAINE)  
National Higher School of Mathematics, ALGERIA  
Email: z.latreuch@nhsm.edu.dz

### **On the periodicity of entire functions and their differential polynomials**

We obtain some results regarding the problem of the periodicity of entire functions  $f(z)$  when differential polynomials  $P(z, f)$  with constant coefficients generated by  $f(z)$  are periodic. We provide some sufficient conditions that ensure the periodicity of  $f(z)$ , and we discuss some properties of periodic functions. Our results generalize and improve some earlier ones and have an importance concerning entire solutions of differential equations of the form  $P(z, f) = h(z)$ , where  $h(z)$  is a periodic function.

#### REFERENCES

- [1] M. A. Zemirni, I. Laine, Z. Latreuch *New findings on the periodicity of entire functions and their differential polynomials*, Mediterr. J. Math. (2023) <https://link.springer.com/article/10.1007/s00009-023-02351-z>.
- [2] P. Li, W. R. Lü, C. C. Yang, *Entire solutions of certain types of nonlinear differential equations*, Houston J. Math. **45** (2019), no. 2, 431–437.