Oscillation theorems for second-order nonlinear difference equations of Euler type

ΝΑΟΤΟ ΥΑΜΑΟΚΑ

Department of Mathematical Sciences, Osaka Prefecture University, Sakai 599-8531, Japan

E-mail address: yamaoka@ms.osakafu-u.ac.jp

This talk deals with the oscillatory behavior of the difference equation which corresponds to the nonlinear differential equation of Euler type $x'' + f(x)/t^2 = 0$, where f(x) is continuous on \mathbb{R} and satisfies the signum condition xf(x) > 0 if $x \neq 0$. To give the oscillation theorem for the nonlinear difference equation, we consider the linear difference equation corresponding to the Riemann-Weber version of the Euler differential equation.

References

- [1] S. Elaydi, An Introduction to Difference Equations, Third edition, Springer, New York, 2005.
- [2] J. Sugie and K. Kita, Oscillation criteria for second order nonlinear differential equations of Euler type, J. Math. Anal. Appl., **253**, (2001), 414–439.
- [3] G. Zhang and S.S. Cheng, A necessary and sufficient oscillation condition for the discrete Euler equation, Panamer. Math. J., 9, (1999), 29–34.