

Giselle A. Monteiro,* Mathematical Institute, Slovak Academy of Sciences,
Štefánikova 49, 814 73 Bratislava. email: monteiro@mat.savba.sk

A NOTE ON KURZWEIL-STIELTJES INTEGRABILITY AND SOME PARTICULAR CLASSES OF FUNCTIONS

In the late fifties, a theory of integration introduced by J. Kurzweil in [2] revealed to be more general than the Riemann and the Lebesgue integrals, including the Stieltjes type. Regarding Stieltjes integrals, it is well-known that the classes of continuous functions and functions of bounded variation are adjoint with respect to the Riemann-Stieltjes integral (cf. [1]).

In this presentation we analyse whether the Kurzweil-Stieltjes integral mimics such a property of the Riemann-Stieltjes integral with respect to functions. In particular, we study the classes of regulated functions and functions of bounded variation with respect to their integrability, providing then a partial answer to the question of adjoint classes of Kurzweil-Stieltjes integrable functions.

The presented results are part of a work under preparation.

References

- [1] T. H. Hildebrandt, *Theory of Integration*. Academic Press, New York & London, 1963.
- [2] J. Kurzweil, *Generalized ordinary differential equations and continuous dependence on a parameter*, Czech. Math. J., 7(82) (1957), 418-448.

Mathematical Reviews subject classification: Primary: 26A39; Secondary: 26A42, 26A45
Key words: Kurzweil-Stieltjes integral, adjoint classes, regulated functions, functions of bounded variation

*The project is financed by the SASPRO Programme. The research leading to these results has received funding from the People Programme (Marie Curie Actions) European Union's Seventh Framework Programme under REA grant agreement No. 609427. Research has been further co-funded by the Slovak Academy of Sciences