**ILLIA KARABASH**, University of Calgary, 2500 University Drive NW, Calgary, Alberta T2N 1N4

*Extension of Molchanov's oscillation criterion to nonlinear ODE of $p$-Laplacian type*

It is well known that Molchanov's criterion for discreteness of spectrum of a linear Sturm–Liouville operator $-d^2/dx^2 + q$ acting in $L^2(0,\infty)$ and having semi-bounded potential $q(x) \geq c$ can be reformulated in the terms of oscillation: the equation $-y''(x) + q(x)y(x) = \lambda y(x)$ is non-oscillatory for all $\lambda \in \mathbb{R}$ if and only if $\lim_{x\to\infty} \int_x^{x+\varepsilon} q = +\infty$ for any $\varepsilon > 0$.

It will be shown that this oscillation criterion holds for the equation

$$-\Big(\big(\operatorname{sgn} y'(x)\big)|y'(x)|^{p-1}\Big)' = (p-1)\big(\lambda - q(x)\big)\big(\operatorname{sgn} y(x)\big)|y(x)|^{p-1}, \quad x \in (0,\infty),$$

with $q(x) \geq c$ and $p > 1$, which is nonlinear for $p \neq 2$. The part 'if' was proved in Binding and Browne (2008). The main aim of the talk is the inverse implication 'only if'. It is also planned to discuss several recent related results.

The research is partially supported by the PIMS Post-Doctoral Fellowship at the University of Calgary. The talk is based on joint research with Paul Binding.