Milan Tvrdý (* 3. 10. 1944)

- **University studies:** Faculty of Mathematics and Physics, Charles University, Prague, 1962-1967.
- **Candidate of Sciences (corresponding to PhD.):** 1973.
- **Present positions:**
  - Senior Research Worker of the Department of Department of Real and Stochastic Analysis, Institute of Mathematics, Academy of Sciences of the Czech Republic;
  - Deputy Director of the Institute of Mathematics, Academy of Sciences of the Czech Republic, 1996-2008;
  - Director of the Institute of Mathematics, Academy of Sciences of the Czech Republic, 2008-2009;
  - Associated Professor of Palacký University, Olomouc.
- **Fields of scientific interest:**
  - linear and nonlinear boundary value problems,
  - differential and integral equations with solutions in the space of regulated functions,
  - functional differential equations,
  - theory of generalized Perron integral.
- **Some recent publications:**

monographs

- Tvrdý M., *Differential and Integral Equations in the Space of Regulated Func-tions*. Mem. Differential Equations Math. Phys. 25 (2002), 1-104.
- Rachůnková I., Staněk S., Tvrdý M., *Singularities and Laplacians in Boundary Va-lue Problems for Nonlinear Ordinary Differential Equations*. In: Handbook of Differential Equations (Ordinary Differential Equations) Vol.3, 2006], 605-721.
- Rachůnková I., Staněk S., Tvrdý M., *Solvability of Nonlinear Singular Problems for Ordinary Differential Equations*. Hindawi [Contemporary Mathematics and Its Applications, Vol.5], 2009.
  ISBN: 9789774540400 (Paperback), ISBN: 9789774540967 (PDF).

scientific journals

- Rachůnková I., Tvrdý M., Impulsive Periodic Boundary Value Problem and Topological Degree. *Functional Differential Equations, Israel Seminar* 9 (2002) (3-4) 471-498.
- Rachůnková I., Tvrdý M., Localization of nonsmooth lower and upper functions for periodic boundary value problems. *Mathematica Bohemica* 127 (2002), 531-545.
- Rachůnková I., Tvrdý M, Vrkoč I., Resonance and multiplicity in periodic booundary value problems with singularity. *Mathematica Bohemica* 128 (2003), 45-70.
- Rachůnková I., Tvrdý M., Nonmonotone impulse effects in second-order periodic boundary value problems. *Abstract and Applied Analysis* 2004:7 (2004), 577-590.
- Rachůnková I., Tvrdý M., Construction of non-constant lower and upper functions for impulsive periodic problems. *Electronic Journal of Qualitative Theory of Differential Equations*, 19 (2004), 1-8.
- Rachůnková I., Tvrdý M., Existence Results for Impulsive Second Order Periodic Problems. *Nonlinear Analysis, T.M.A.* 59 (2004), 133-146.
- Rachůnková I., Tvrdý M., Non-Ordered Lower and Upper Functions in Second Order Impulsive Periodic problems. *Dynamics of Continuous, Discrete and Impulsive Systems, Ser. A Math. Anal*. 12 (2005), no. 3-4, 397-415.
- Rachůnková I., Tvrdý M., Periodic problems with phi-Laplacian involving non-ordered lower and upper functions. *Fixed Point Theory* 6 (2005), 99-112.
- Rachůnková I., Tvrdý M., Second order periodic problem with Φ-Laplacian and impul-ses. *Nonlinear Analysis, T.M.A*. 63 (2005), e257-e266.
- Rachůnková I., Tvrdý M., Periodic singular problem with quasilinear differential opera-tor, *Mathematica Bohemica* 131 (2006), 321-336.
- Cabada A., Lomtatidze A., Tvrdý M., Periodic problem with quasilinear differential operator and weak singularity, *Advanced Nonlinear Studies,* 7 (2007), 629-649.
- Halas Z., Tvrdý M., Singular Periodic Impulse Problems. *Nonlinear Oscillations* 11 (2008), No.1, 32-44.

- Halas Z., Tvrdý M., Continuous dependence of solutions of generalized linear differential equations on a~parameter. *Funct. Differ. Equ.* 16 (2009), No. 2, 299-313. (PDF.)
- Cabada A., Cid J.A., Tvrdý M., A generalized anti-maximum principle for the periodic one dimensional p-Laplacian with sign changing potential. *Nonlinear Analysis, T.M.A.* 72 (2010) 3436--3446.

- **Some of the more important older publications:**
  - Schwabik Š., Tvrdý M., Vejvoda O.: *Differential and Integral Equations: Boundary Value Problems and Adjoints*. Academia and D. Reidel, Praha, 1979.
  - Tvrdý M., Linear boundary value type problems for functional-differential equations and their adjoints. *Czechoslovak Mathematical Journal* 25 (100) (1975), 37-66.

  [For complete list of publications, see http://www.math.cas.cz/~tvrdy/publ.html ,
  for list of available quotations of my papers (to 2007),
  see http://www.math.cas.cz/~tvrdy/impact.pdf]

- **Some recent invited lectures:**

  seminars
  - Method of lower and upper functions in singular periodic problems for second order nonlinear differential equations. (Oberseminar NONLINEAR DYNAMICS, Free University Berlin, 60 min.) (2004).
  - Periodic solutions to Φ-Liénard equations with singularity. University of Santiago de Compostela, Spain, 60 min., October 2005.
  - Singular Periodic Problems. University of Vigo, Spain, 60 min., October 2005.
  - Periodic solutions to Φ-Liénard equations with singularity. University of Timisoara, Romania, 60 min., November 2005.

  plenary talks on international conferences
  - Singular nonlinear periodic problems. Modelling 2005 - The Third IMACS Conference on Mathematical Modelling and Computational Methods In Applied Sciences And Engineering, PLENARY TALK, Plzeň, Czech Republic, July 2005.
  - Periodic singular problem with quasilinear differential operator. CDDEA 2006, PLENARY TALK, Rajecké Teplice, Slovakia, June 2006.

  contributions to invited minisymposia or sessions of international conferences
  - Lower and upper functions and periodic boundary value problems with singularities. NONLINEAR ANALYSIS DAY (org. by J. Mawhin & J.P. Gossez), Louvain-La-Neuve / Brussels, Belgium, invited talk, February 2003.
  - Non-ordered lower and upper functions in second order impulsive periodic problems. EQUADIFF 2003, Hasselt, Belgium, invited session TOPOLOGICAL AND VARIATIONAL METHODS (org. by Jean Mawhin), July 2003.
  - Periodic singular problem with quasilinear differential operator and weak singularity. The Fifth International Conference On Dynamic Systems and Applications, invited minisymposium WORKSHOP ON TOPOLOGICAL METHODS FOR BOUNDARY VALUE PROBLEMS (org. by J. Graef & J. Webb), Atlanta, U.S.A., June 2007.
  - On singular periodic problems for equations with p-Laplacian. EQUADIFF 2007, invited minisymposium QUALITATIVE THEORY AND APPLICATIONS OF ODE (org. by F. Battelli & F. Zanolin), Wien, Austria, August 2007.

- **Organization of conferences, seminars and symposia:**
  - Conference On Differential and Difference Equations, [Gdansk, Poland, August 24-27, 2005] (member of program committee).
  - Conference On Differential and Difference Equations and Applications, [Rajecké Teplice (Slovakia), June 26-30, 2006] (member of organizing committee).
  - EURO 2006 [Reykjavik, Iceland, July 2-5, 2006] (organizer of sessions "Nonlinear Boundary Value Problems").
  - *Boundary Value Problems and Related Topics* [Workshop on Differential Equations, September 16 – 20, 2007, Hejnice, Czech Republic] (chairman of the organizing committee) [see http://www.math.cas.cz/~wde/main.php].

- **Member of editorial boards:**
  - Memoirs on Differential Equations and Mathematical Physics, Tbilisi;
  - Nonlinear Oscillations, Kiev.
- **Teaching Experience:**
  - Charles University Prague: 1970-1972, 1973, 1990-1998 (calculus, ordinary differential equations),
  - Czech Technical Univ. Prague: 1980-1990 (calculus),
  - Palacký University Olomouc: since 1999 (special courses: differential and integral equations, integration theory).