

Articole științifice:**Articole în reviste internaționale**

- V Badescu. On the thermodynamics of the conversion of diluted radiation. *J Phys D : Appl Phys* 23,289-292,1990.
- V Badescu. Time-dependent and steady state statistics of photons at non-zero chemical potential, *J Phys C: Cond Matter*. 3. 6509-6521. 1991.
- V Badescu. Maximum conversion efficiency for the utilization of multiple scattered solar radiation. *J Phys D : Appl Phys*. 24,1882-1885,1991.
- V Badescu. Studies concerning the empirical relationship of cloud shade to point cloudiness (Romania), *Theor Appl Climatol*. 44, 187-200,1991
- V Badescu. P T Landsberg. Theory of some effects of photon recycling in semiconductors. *Semicond Sci Technol*. 8. 1267-1276. 1993.
- V Badescu, Different tracking error distributions and their effects on the long-term performances of parabolic dish solar power systems. *Int J Solar Energy*. 14. 203-216. 1994.
- V Badescu. P T Landsberg. Statistical thermodynamic foundation for photovoltaic and photothermal conversion . I. Theory. *J Appl Phys*. 78(4) 2782- 2792. 1995
- V Badescu. P T Landsberg. Statistical thermodynamic foundation for photovoltaic and photothermal conversion . II. Application to photovoltaic conversion. *J Appl Phys*. 78(4) 2793- 2802. 1995
- V Badescu. On the radius of the Dyson's sphere. *Acta Astronautica*. 36 (2). 135-138. 1995.
- V Badescu. M Momirlan. Statistics of TiO_2 crystal growth in air on a metallic surface heated at temperatures in the range 900 - 1100 °C . *J Crystal Growth*. 169. 309-316. 1996.
- V Badescu. P T Landsberg. Statistical thermodynamics of bosons in one - and two - level quantum wells. *Phys Stat. Solidi (b)*. 200. 99 - 112. 1997
- V Badescu. B Andresen. Probabilistic finite time thermodynamics : a chemically driven engine. *J Non-Equilib Thermody*. 21. 291-306. 1996
- V Badescu. P T Landsberg and A De Vos. Statistical thermodynamic foundation for photovoltaic and photothermal conversion III : Application to hybrid solar converters. *J Appl Phys*. 81 (8) 3692 - 3699. 1997
- V Badescu, P T Landsberg, Influence of photon recycling on solar cell efficiency, *Semicond Sci Technol*. 12. 1491-1497, 1997.
- V Badescu, Accurate upper bound for the efficiency of converting solar energy into work, *J Phys D: Appl Phys*, 31, 820-825, 1998.
- V Badescu, Accurate upper bounds for the conversion efficiency of black-body radiation energy into work, *Phys Lett A*, 244, 31-34, 1998.
- V Badescu, Simulation of solar cells utilization on the surface of Mars, *Acta Astronautica*, 43(9-10), 443-453, 1998.
- V Badescu, Simple upper bound efficiencies for endoreversible conversion of thermal radiation, *J Non-Equilib Thermodyn*, 24, 196-202, 1999.
- A Bejan, V Badescu, A De Vos, Constructal theory of economics structure generation in space and time, *Energy Conversion and Management*, 41, 1429-1451, 2000
- P T Landsberg, V Badescu, The geometric factor of spherical radiation sources, *Europhys Lett* 50(6), 816-822, 2000

- V Badescu, R B Cathcart, Stellar engines for Kardashev's type II civilisations, J British Interplanetary Soc., 53 (9/10), 297-306, 2000.
- P T Landsberg, V Badescu, Carnot factor in solar cell efficiencies, J Phys D: Appl. Phys, 33, 3004-3008, 2000.
- Viorel Badescu, Peter T. Landsberg, Alexis De Vos, and Bart Desoete, Statistical thermodynamic foundation for photovoltaic and photothermal conversion. IV. Solar cells with larger-than-unity quantum efficiency revisited. J Appl Phys, 89, 2482-2490, 2001
- V. Badescu, A new kind of cloudy sky model to compute instantaneous values of diffuse and global solar irradiance, Theor Appl Climatology, 72 (1-2), 127 – 136, 2002.
- V Badescu, P T Landsberg, The tau-oscillator, J Phys A, 35, L 591-L595, 2002.
- V. Badescu, Optimal paths for minimizing lost available work during usual heat transfer processes, J Non-Equilibrium Thermodynamics, 29, 53-73, 2004.
- V Badescu, Optimal strategies for steady state heat exchanger operation, J Phys D, 37 (2004) 2298-2304
- V Badescu, Optimal control of forced cool-down processes, Int J Heat Mass Transfer, 48 (2005) 741-748
- V Badescu, Regional and seasonal limitations for Mars intrinsic ecopoiesis, Acta Astronautica, 56 (2005) 670-680
- V Badescu, Spectrally and angularly selective photothermal and photovoltaic converters under one-sun illumination. J Phys D: Appl. Phys. 38 (2005) 2166-2172
- Schuiling, R.D., Badescu, V., Cathcart, R.B., Van Overveld, P.A.L.C. The Hormuz Strait Dam Macroproject 21st Century Electricity Development Infrastructure Node (EDIN)? Marine Georesources and Geotechnology, 2005, 23, no 1-2, 25-37.
- Viorel Badescu and Peter T. Landsberg, Canonical Ensemble with Temperature Limitation, Foundations of Physics Letters, 2005, Volume 18, Number 3, Pages: 205 - 226
- V. Badescu, R. B. Cathcart, Environment thermodynamic limitations on global human population, Int J Global Energy Issues, 2006, 25(1/2), 129-140.
- V Badescu, R B Cathcart, Use of class A and class C stellar engines to control sun movement in the galaxy, Acta Astronautica, 58 (2006) 119-129.
- V Badescu, Optimum fin geometry in flat plate solar collector systems, Energy Conversion and Management, 47 (2006) 2397-2413
- V Badescu, Accurate upper bound for heating gain factor, Europhysics Letters, 76(4), 568-574, 2006
- V Badescu, Asteroid impacts or nuclear explosions in the Black Sea may lead to poisoning of the coastal population, Int. J. Environ. Studies, 2007, 64(1), 19-29
- V Badescu, D Isvoranu, Classical statistical thermodynamics approach for the exergy of nuclear radiation, Europhys Lett, 80 (2007) 30003, doi: 10.1209/0295-5075/80/30003
- V Badescu, Poisonous Effects of Asteroid Impacts or Nuclear Explosions in the Western Regions of the Black Sea, Earth Interactions, **Volume 11, Issue 16 (September 2007)**, pp. 1–27, DOI: 10.1175/EI218.1
- Viorel Badescu, Exergy transported by particle fluxes, Physica A 387 (2008) 1818–1826.
- Viorel Badescu, Unified upper bound for photothermal and photovoltaic conversion, Journal Of Applied Physics 103, 054903, 2008, DOI: 10.1063/1.2890145
- Viorel Badescu, Physical Temperature And Pressure In Fully Nonextensive Statistical Thermodynamics, Advances In Complex Systems, Vol. 11, No. 1 (2008) 43–54

- Viorel Badescu, Exact and approximate statistical approaches for the exergy of blackbody radiation, *Central European Journal of Physics*, Volume 6, Number 2 / June, 2008, p. 344-350, DOI: 10.2478/s11534-008-0033-1
- Badescu, V., Theoretical derivation of heliostat tracking errors distribution, *Sol. Energy* (2008), 82, pp. 1192-1197, doi:10.1016/j.solener.2008.05.013
- Wolfgang Muschik, Viorel Badescu, Irreversible Jaynes Engine for More Efficient Heating. *Journal of Non-Equilibrium Thermodynamics*, 2008, 33(4): 297-306
- Viorel Badescu, Roelof D. Schuiling, Aral Sea; Irretrievable Loss or Irtysh Imports?, *Water Resour Management*, 24 (3), 2010, 597-616, DOI 10.1007/s11269-009-9461-y
- Viorel Badescu, Dragos Isvoranu, Richard Cathcart, Transatlantic Freshwater Aqueduct, *Water Resour Management*, 2010, 24(8), 1645-1675, DOI 10.1007/s11269-009-9518-y
- V Badescu, P. T. Landsberg, Statistically q-deformed and tau-deformed systems, *Complexity* 15(3) 2010, 19-25; DOI 10.1002/cplx.20280
- V Badescu, Thermodynamic Constrains for Life Based on Non-Aqueous Polar Solvents on Free-Floating Planets, *Origins of Life and Evolution of Biospheres*, 2011, 41, 73-99; doi:10.1007/s11084-010-9216-z
- M. Paulescu, V. Badescu, New approach to measure the stability of the solar radiative regime, *Theor Appl Climatol*, 2011, 103:459–470, DOI 10.1007/s00704-010-0312-9
- Dragos Isvoranu, Viorel Badescu, Peculiarities of tsunamis generated by Asteroid impact or nuclear explosions in the northwest of Black Sea, *Natural Hazards*, 58, 1 (2011), 45-66, DOI: 10.1007/s11069-010-9642-2
- V. Badescu, M. Paulescu, Statistical properties of the sunshine number illustrated with measurements from Timisoara (Romania), *Atmospheric Research*, 101 (1-2), 2011, 194-204, DOI: 10.1016/j.atmosres.2011.02.009
- V. Badescu, Constraints on the free-floating planets supporting aqueous life, *Acta Astronautica*, 69 (2011) 788–808, doi:10.1016/j.actaastro.2011.06.001
- Viorel Badescu, Free-floating planets as potential seats for aqueous and non-aqueous life, *Icarus* 216 (2011) 485-491, DOI: 10.1016/j.icarus.2011.09.013
- Paulescu M, Badescu, V, Brabec M, Tools for PV (photovoltaic) plant operators: Nowcasting of passing clouds, *Energy* 54 (2013) 104-112, <http://dx.doi.org/10.1016/j.energy.2013.03.005>
- V Badescu, Lost available work and entropy generation: Heat versus radiation reservoirs, *J. Non-Equilib. Thermodyn.* 38 (2013), 313–333, DOI 10.1515/jnetdy-2013-0017.
- V. Badescu, Is Carnot efficiency the upper bound for work extraction from thermal reservoirs? *EPL*, 106 (2014) 18006; doi: 10.1209/0295-5075/106/18006.
- V. Badescu, How much work can be extracted from a radiation reservoir? *Physica A*, 410 (2014) 110-119; doi:10.1016/j.physa.2014.05.024
- M. Brabec, V. Badescu, M. Paulescu, Cloud shade by dynamic logistic modeling, *Journal of Applied Statistics*, 2014, vol. 41, issue 6, pages 1174-1188; doi: 10.1080/02664763.2013.862221.
- Marek Brabec, Marius Paulescu, Viorel Badescu, Tailored vs black-box models for forecasting hourly average solar irradiance, *Solar Energy*, Volume 111, January 2015, Pages 320–331; [doi:10.1016/j.solener.2014.11.003](http://dx.doi.org/10.1016/j.solener.2014.11.003).
- V. Badescu, Maximum reversible work extraction from a blackbody radiation reservoir. A way to closing the old controversy. *EPL*, 109 (2015) 40008, doi: 10.1209/0295-5075/109/40008.

- V. Badescu, Optimal profiles for one dimensional slider bearings under technological constraints, *Tribology International*, 90 (2015) 198–216, doi:10.1016/j.triboint.2015.04.023.
- V. Badescu, Optimal piston motion for maximum net output work of Daniel cam engines with low heat rejection, *Energy Conversion and Management* 101 (2015) 181–202; doi: 10.1016/j.enconman.2015.05.020.
- V. Badescu, Optimal profile of heat transfer pin fins under technological constraints, *Energy*, Volume 93, Part 2, 2015, 2292–2298, DOI: [10.1016/j.energy.2015.10.071](https://doi.org/10.1016/j.energy.2015.10.071)
- V. Badescu, Smooth and non-smooth optimal pin fin profiles beyond the Schmidt optimality assumption and “length-of-arc” approximation, *Applied Mathematical Modelling* 47 (2017) 358–380, doi: [10.1016/j.apm.2017.03.011](https://doi.org/10.1016/j.apm.2017.03.011)
- Alexandru Dumitrescu, Chris A. Gueymard and Viorel Badescu, Reconstruction of historical aerosol optical depth time series over Romania during summertime, *Int. J. Climatol.* 37: 4720–4732(2017);DOI:10.1002/joc.5118.
- V. Badescu, How much work can be extracted from diluted solar radiation? *Solar Energy*, Volume 170, August 2018, Pages 1095–1100; 10.1016/j.solener.2018.05.094
- V. Badescu, Upper Bounds for the Conversion Efficiency of Diluted Blackbody Radiation Energy into Work, *Journal of Non-Equilibrium Thermodynamics*, Volume 43, Issue 4, Pages 273–287, 2018; <https://doi.org/10.1515/jnet-2018-0004>.
- V. Badescu, A. Ciocanea, S. Budea, I. Soriga, Regularizing the operation of unglazed transpired collectors by incorporating phase change materials, *Energy Conversion and Management*, 184 (2019) 681-708, doi: 10.1016/j.enconman.2019.01.049