

## CURRICULUM VITAE

1. Name                    Diekmann, Odo
2. Affiliation:            Mathematical Institute , Utrecht University
3. Address:                P.O.Box 80.010 , NL 3508 TA Utrecht , The Netherlands
4. email :                 o.diekmann@uu.nl
5. Current Position : Professor Emeritus
6. Citizenship:          Dutch
7. Education:
  - University of Amsterdam, "Doctoraal" in Applied Mathematics, 1974
  - University of Amsterdam, Ph.D., 1978
8. Experience:
  - researcher and group leader, CWI, Amsterdam, 1978 - 1995
  - Professor of Mathematical Biology,  
University of Leiden, Biology Department, 1986 - 1995
  - Professor of Applied Mathematics  
University of Utrecht, Mathematics Department, 1995 - 2013
9. Journals:
  - Honorary Editor of Journal of Mathematical Biology  
(advisory board 1982-1990, editor 1990-1999, managing editor 1999-2009)
  - Associate Editor:
    - Canadian Applied Mathematics Quarterly
    - Mathematical Models and Methods in Applied Sciences
    - International Journal of Biomathematics (Chinese)
  - Mathematical Biosciences (until 2015)
  - Theoretical Population Biology (until 2015)
  - Japan Journal of Industrial and Applied Mathematics (1983 until 2004)
  - Book Series Associate Editor :
    - Mathematical and Computational Biology (Wiley Book Series; dormant)
    - Lecture Notes in Mathematical Modelling in the Life Sciences (Springer; new)
10. Miscellaneous :
  - Foreign Member of The Finnish Society of Sciences and Letters  
(Societas Scientiarum Fennica)
  - Consultancy: ID-DLO (veterinary institute) (roughly 1995 - 2003)
  - Consultancy: InnoTact (small project on anti-biotic resistance, 2009)
  - Lid Commissie Wetenschappelijke Integriteit Universiteit Utrecht
  - Advies Raad Lorentz Centre (2009-2013)
  - Utrecht Centre for Infection Dynamics (central activity in UU focus area  
epidemiology) steering committee

three times co-organizer Oberwolfach meeting on Mathematical Biology (1996, 1999, 2003)  
advisor CWI MAS1 2000 until 2004

Member of the Scientific Advisory Committee of CMAF-CIO (Centro de Matemática, Aplicações Fundamentais e Investigação Operacional). This is a research unit at Faculdade de Ciências da Universidade de Lisboa. 2016 -

#### 11. Fields of Interests:

-- Mathematical Population Dynamics : modelling of structured biological populations: growth, interaction (including infectious agents), spatial spread and evolution through natural selection.  
-- Dynamical Systems, in particular in infinite dimensional spaces : semigroups of bounded linear operators on (dual) Banach spaces and their generators, with applications in population dynamics and the theory of delay equations.

#### 12. Visiting Positions

Spring 2003 : one-month Ecole Normale Superieure, Paris

Fall 2008 : two months Helsinki University

Winter/Spring 2009 : three months CRM (Centre de Recerca Matematica) Universitat Autònoma Barcelona

Spring 2009 one month EHESS (Ecole des Hautes Etudes en Sciences Sociales) Paris

Summer 2009 one month Hokkaido University, Sapporo

Spring 2014 one month University of Trento

Fall 2014 three months Helsinki University

Spring 2015 one month Fields Institute, Toronto

#### 13. List of PhD students :

D. Hilhorst 02-12-1981 Leiden University

On some nonlinear problems arising in the physics of ionized gases

promotor L.A. Peletier

copromotores R. Temam , O. Diekmann

S.A. van Gils 26-01-1984 TU Delft

Some studies in dynamical system theory

I. Volterra integral equations of convolution type

II. Hopf bifurcation and symmetry

promotor Ph.P.J.E. Clément

copromotor O. Diekmann

H.J.A.M. Heijmans 15-05-1985 University of Amsterdam

Dynamics of structured populations

promotor H.A. Lauwerier

copromotor O. Diekmann

S.M. Verduyn Lunel 06-10-1988 Leiden University

Exponential type calculus for linear delay equations

promotor O. Diekmann

copromotor L.A. Peletier

A.M. de Roos 14-09-1989 Leiden University  
Daphnids on a train  
promotores O. Diekmann , J.A.J. Metz

H. Inaba 23-11-1989 Leiden University  
Functional analytic approach to age-structured population dynamics  
promotor O. Diekmann

J.M.A.M. van Neerven 19-02-1992 Leiden University  
The adjoint of a semigroup of linear operators  
promotor O. Diekmann  
copromotor B. de Pagter

J.A.P. Heesterbeek 17-09-1992 Leiden University  
R<sub>0</sub>  
promotores O. Diekmann , J.A.J. Metz

V.A.A. Jansen 15-09-1994 Leiden University  
Theoretical aspects of metapopulation dynamics  
promotores O. Diekmann , M.W. Sabelis

M. Filali 08-12-1995 Université Mohamed I Oujda Maroc  
Theorie de perturbation pour les semigroupes de classe C<sub>0</sub> et les familles d'évolution  
promotor O. Diekmann

S.D. Mylius 26-05-1999 Leiden University  
The good, the bad and the fittest : evolutionary games in structured populations  
promotores O. Diekmann , J.A.J. Metz

G.M. Hek 31-05-2000 Utrecht University  
Bifurcations of homoclinic orbits in singularly perturbed flows  
promotores A. Doelman , O. Diekmann

N. El Houssif 20-10-2001 Université Cadi Ayyad Marrakech Maroc  
A deterministic size structured population model with reproduction at a specified size  
promotor O. Diekmann  
copromotor A. Jamali

A.A. de Koeijer 17-09-2003 Utrecht University  
Infectious diseases among animals : combining models and data  
promotores O. Diekmann , M.C.M. de Jong

Yunxin Huang 02-06-2003 Utrecht University  
The interplay of migration and population dynamics in a patchy world  
promotor O. Diekmann

N.V. Davydova 14-01-2004 Utrecht University  
Old and Young. Can they coexist ?

promotor O. Diekmann

Ph. Getto 24-01-2005 Utrecht University  
On some quasilinear structured population models  
promotor O. Diekmann

M.C.J. Bootsma 23-05-2005 Utrecht University  
Mathematical studies of the dynamics of antibiotic resistance  
promotores O. Diekmann , M.J.M. Bonten

B. Boldin 05-09-2007 Utrecht University  
Mathematical aspects of infectious disease dynamics  
promotores O. Diekmann , M.J.M. Bonten

K.Y. Leung 27-06-2016 Utrecht University  
Dangerous connections : the spread of infectious diseases on dynamic networks  
Promotores O. Diekmann, M.E.E. Kretzschmar

#### 14. List of publications :

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##### BOOKS :

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O. Diekmann, N.M. Temme (eds.)  
Nonlinear Diffusion Problems, MC Syllabus 28 (1977) 247 pages.

O. Diekmann, J.A.J. Metz (eds.)  
The Dynamics of Physiologically Structured Populations,  
Lecture Notes in Biomathematics 68, Springer-Verlag, 1986, XII + 511 pages.

O. Diekmann, S.A. van Gils, S.M. Verduyn-Lunel, H.-O. Walther,  
Delay Differential Equations: functional-, complex- and nonlinear analysis,  
Springer Applied Math Sciences 110 , 1995, 534 p.

V. Capasso & O. Diekmann (eds.)  
Mathematics Inspired by Biology  
Springer LNiM 1714 , 1999, 240 pages

O. Diekmann, J.A.P. Heesterbeek  
Mathematical Epidemiology of Infectious Diseases : Model Building, Analysis and Interpretation  
Wiley Series in Mathematical and Computational Biology , 2000, 320 pages.

J.A.P. Heesterbeek, O. Diekmann, J.A.J. Metz (eds.)  
De Wiskundige Kat, de Biologische Muis en de Jacht op Inzicht  
Epsilon 55, 2004, 225 pages (in Dutch)

O. Diekmann, J.A.P. Heesterbeek, T. Britton  
Mathematical Tools for Understanding Infectious Disease Dynamics  
Princeton University Press, 2012, 502 pages (expanded version of 2000 book)

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PAPERS :

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O. Diekmann, Some aspects of non-uniform convergence in an elliptic singular perturbation problem,  
Journal of Engineering Math. 9 (1975) 227-233.

O. Diekmann, Limiting behaviour in an epidemic model,  
Nonlinear Analysis, Theory, Methods & Applications 1 (1977) 459-470.

O. Diekmann, Thresholds and travelling waves for the geographical spread of infection,  
Journal of Math. Biol. 6 (1978) 109-130.

O. Diekmann, H.G. Kaper, On the bounded solutions of a nonlinear convolution equation,  
Nonlinear Analysis, Theory, Methods & Applications 2 (1978) 721-737.

O. Diekmann, Run for your life. A note on the asymptotic speed of propagation of an epidemic,  
Journal of Differential Equations 33 (1979) 58-73.

O. Diekmann, D. Hilhorst, L.A. Peletier  
A singular boundary value problem arising in a pre-breakdown gas discharge,  
SIAM Journal on Applied Math. 39 (1980) 48-66.

O. Diekmann, R. Montijn, Prelude to Hopf bifurcation in an epidemic model,  
Journal of Math. Biol. 14 (1982) 117-127.

O. Diekmann, D. Hilhorst, Variational analysis of a perturbed free boundary problem,  
Communications in Partial Differential Equations 7 (1982) 1309-1336.

O. Diekmann, H.A. Lauwerier, T. Aldenberg, J.A.J. Metz  
Growth, fission and the stable size distribution, J. Math. Biol. 18 (1983) 135-148.

O. Diekmann, S.A. van Gils, Invariant manifolds for Volterra integral equations of convolution type,  
J. Diff. Equ. 54 (1984) 139-180.

O. Diekmann, H.J.A.M. Heijmans, H.R. Thieme  
On the stability of the cell size distribution, J. Math. Biol. 19 (1984) 227-248.

O. Diekmann, J.A.J. Metz, S.A.L.M. Kooijman, H.J.A.M. Heijmans  
Continuum population dynamics with an application to *Daphnia Magna*,  
Nieuw Archief voor Wiskunde (4) 2 (1984) 82-109.

S.-N. Chow, O. Diekmann, J. Mallet-Paret

Stability, multiplicity and global continuation of symmetric periodic solutions of a nonlinear Volterra integral equation, *Japan J. Appl. Math.* 2 (1985) 433-469.

O. Diekmann, H.J.A.M. Heijmans, H.R. Thieme  
On the stability of the cell size distribution. II: Time-periodic developmental rates,  
*Comp. & Maths. with Appls.* 12A (1986) 491-512.

O. Diekmann, R.M. Nisbet, W.S.C. Gurney, F. van den Bosch  
Simple mathematical models for cannibalism: a critique and a new approach,  
*Math. Biosc.* 78 (1986) 21-46.

J.J. Tyson, O. Diekmann, Sloppy size control of the cell division cycle,  
*J. Theor. Biol.* 118 (1986) 405-426.

F. van den Bosch, O. Diekmann  
Interactions between egg-eating predator and prey: the effect of the functional response and of age structure,  
*IMA J. Math. Appl. Med. Biol.* 3 (1986) 53-69.

Ph. Clément, O. Diekmann, M. Gyllenberg, H.J.A.M. Heijmans, H.R. Thieme  
Perturbation theory for dual semigroups. I : The sun-reflexive case,  
*Math. Ann.* 277 (1987) 709-725.

Ph. Clément, O. Diekmann, M. Gyllenberg, H.J.A.M. Heijmans, H.R. Thieme  
Perturbation theory for dual semigroups. II : Time-dependent perturbations in the sun-reflexive case,  
*Proc. Roy. Soc. Edinb.* 109A (1988) 145-172.

M.W. Sabelis, O. Diekmann, Overall population stability despite local extinction: The stabilizing influence of prey dispersal from predator invaded patches,  
*Theor. Pop. Biol.* 34 (1988) 169-176.

O. Diekmann, J.A.J. Metz, M.W. Sabelis  
Mathematical models of predator-prey-plant interaction in a patchy environment,  
*Experimental and Applied Acarology* 5 (1988) 319-342.

O. Diekmann, J.A.J. Metz, M.W. Sabelis, Reflections and calculations on a prey-predator-patch problem,  
*Acta Applicandae Mathematicae* 14 (1989) 23-35.

Ph. Clément, O. Diekmann, M. Gyllenberg, H.J.A.M. Heijmans, H.R. Thieme  
A Hille-Yosida type theorem for a class of weakly \* continuous semigroups,  
*Semigroup Forum* 38 (1989) 157-178.

F. van den Bosch, O. Diekmann, J.A.J. Metz  
The velocity of spatial population expansion, *J. Math. Biol.* 28 (1990) 529-565.

O. Diekmann, J.A.P. Heesterbeek, J.A.J. Metz

On the definition and the computation of the basic reproduction ratio  $R_0$  in models for infectious diseases in heterogeneous populations,  
J. Math. Biol. 28 (1990) 365-382.

O. Diekmann, M. Kretzschmar, Patterns in the effects of infectious diseases on population growth,  
J. Math. Biol. 29 (1991) 539-570.

O. Diekmann, K. Dietz, J.A.P. Heesterbeek  
The basic reproduction ratio  $R_0$  for sexually transmitted diseases, part I: Theoretical considerations,  
Math. Biosc. 107 (1991) 325-339.

M.W. Sabelis, O. Diekmann, V.A.A. Jansen,  
Metapopulation persistence despite local extinction: predator-prey patch models of the Lotka-Volterra type,  
Biol. J. Linnean Soc. 42 (1991) 267-283.

A.M. de Roos, O. Diekmann, J.A.J. Metz  
Studying the dynamics of structured population models: a versatile technique and its application to Daphnia,  
Amer. Nat. 139 (1992) 123-147.

M.C.M. de Jong, O. Diekmann  
A method to calculate - for computer-simulated infections - the threshold value,  $R_0$ , that predicts whether or not the infection will spread,  
Prev. Vet. Med. 12 (1992) 269-285

O. Diekmann, M. Gyllenberg, H.R. Thieme  
Perturbing semigroups by solving Stieltjes renewal equations, Diff. Int. Equ. 6 (1993) 155-181

M.C.M. de Jong, O. Diekmann, J.A.P. Heesterbeek  
The computation of  $R_0$  for discrete-time epidemic models with dynamic heterogeneity, Math. Biosc. 119 (1994) 94-114

O. Diekmann, M. Gyllenberg, H.R. Thieme  
Perturbing evolutionary systems by step responses and cumulative outputs  
Diff.Int.Equ. 8 (1995) 1205-1244

O. Diekmann, M.C.M. de Jong, A.A. de Koeijer, P. Reijnders  
The force of infection in populations of varying size: a modelling problem  
J.Biol.Syst. 3 (1995) 519-529

S.M. Mylius, O. Diekmann  
On ESS, optimisation and the need to be specific about density dependence  
Oikos 74 (1995) 218- 224

O. Diekmann, A.A. de Koeijer, J.A.J. Metz  
On the final size of epidemics within herds

Can.Appl.Math.Quart. 4 (1996) 21-30

O. Diekmann

The many facets of evolutionary dynamics

J.Biol.Syst. 5 (1997) 325-339

A. de Koeijer, O. Diekmann, P. Reijnders

Modelling the spread of Phocine Distemper Virus (PDV) among Harbour seals

Bull.Math.Biol. 60 (1998) 585-596

O. Diekmann, M.C.M. de Jong, J.A.J. Metz

A deterministic epidemic model taking account of repeated contacts between the same individuals

J.Appl.Prob. 35 (1998) 448-462

O. Diekmann, M. Gyllenberg, J.A.J. Metz, H.R. Thieme

On the formulation and analysis of general deterministic structured population models. I. Linear theory

J.Math.Biol. 36 (1998) 349 - 388

O. Diekmann, S.D. Mylius, J.R. ten Donkelaar

Saumon à la Kaitala et Getz, sauce Hollandaise

Evol.Ecol.Research 1 (1999) 261-275

O. Diekmann, S.A. van Gils

Difference equations with delay

Japan Journal of Industrial and Applied Mathematics 17 (2000) 73-84

O. Diekmann, M. Gyllenberg, H.R. Thieme

Lack of uniqueness in transport equations with a nonlocal nonlinearity

Mathematical Models and Methods in Applied Sciences 10 (2000) 581 - 591

D. Greenhalgh, O. Diekmann, M.C.M. de Jong

Subcritical endemic steady states in mathematical models for animal infections with incomplete immunity

Mathematical Biosciences 165 (2000) 1 - 25

M.A. Kirkilionis, O. Diekmann, B. Lissner, M. Nool, A.M. de Roos, B. Sommeijer

Numerical continuation of equilibria of physiologically structured population models. I. Theory

Mathematical Models and Methods in Applied Sciences 11 (2001) 1101-1127

O. Diekmann, M. Gyllenberg, H. Huang, M. Kirkilionis, J.A.J. Metz, H.R. Thieme

On the formulation and analysis of general deterministic structured population models. II. Nonlinear theory

Journal of Mathematical Biology 43 (2001) 157 -189

Y. Huang, O. Diekmann



Predator migration in response to prey density : what are the consequences ?  
Journal of Mathematical Biology 43 (2001) 561 - 581

S.D. Mylius, O. Diekmann  
The resident strikes back : invasion induced switching of resident attractor  
Journal of Theoretical Biology 211 (2001) 297-311

I. Pelupessy, M.J.M. Bonten, O. Diekmann  
How to assess the relative importance of different colonization routes  
of pathogens within hospital settings ?  
Proceedings of the National Academy of Sciences 99 (2002) 5601-5605

R. Meester, J. de Koning, M.C.M. de Jong, O. Diekmann  
Modelling and prediction of classical swine fever epidemics  
Biometrics 58 (2002) 178 - 184.

Y. Huang , O. Diekmann  
Interspecific influence on mobility and Turing instability  
Bull. Math. Biol. 65 (2003) 143 - 156

N.V. Davydova, O. Diekmann, S.A. van Gils  
Year class coexistence or competitive exclusion for strict biennials  
J. Math. Biol. 46 (2003) 95 - 131

O. Diekmann, M. Gyllenberg, J.A.J. Metz  
Steady state analysis of structured population models  
Theoretical Population Biology 63 (2003) 309 - 338

Y. Huang, O. Diekmann, F. van den Bosch  
Double-jump migration and diffusive instability  
Bull. Math. Biol. 66 (2004) 487-504

O. Diekmann, A beginners guide to adaptive dynamics  
Banach Center Publications 63 (2004) 47-86

N.V. Davydova, O. Diekmann, S.A. van Gils  
On circulant populations I : the algebra of semelparity  
Linear Algebra and Its Applications 398 (2005) 185-243

O. Diekmann, Ph. Getto, Boundedness, global existence and continuous  
dependence for nonlinear dynamical systems describing physiologically  
structured populations  
Journal of Differential Equations 215 (2005) 268-319

O. Diekmann, P-E. Jabin, S. Mischler, B. Perthame  
The dynamics of adaptation : an illuminating example and a Hamilton-Jacobi approach  
Theoretical Population Biology 67 (2005) 257-271

O. Diekmann, N.V. Davydova, S.A. van Gils

On a boom and bust year class cycle

Journal of Difference Equations and Applications 11 (2005) 327-335

M.W. Sabelis, A. Janssen, O. Diekmann, V.A.A. Jansen, E. van Gool, M. van Baalen

Global persistence despite local extinction in acarine predator-prey systems : lessons from experimental and mathematical exercises

Advances in Ecological Research 37 (2005) 183-220

Ph. Getto, O. Diekmann, A.M. de Roos

On the (dis)advantages of cannibalism

Journal of Mathematical Biology 51 (2005) 695 - 712

M.C.J. Bootsma, O. Diekmann, M.J.M. Bonten

Controlling methicillin-resistant Staphylococcus aureus :

Quantifying the effects of interventions and rapid diagnostic testing

Proceedings of the National Academy of Sciences 103 (2006) 5620-5625

M.C.J. Bootsma, M.J.M. Bonten, S. Nijssen, A.C. Fluit, O. Diekmann

An Algorithm to Estimate the Importance of Bacterial Acquisition Routes in Hospital Settings

American Journal of Epidemiology 166 (2007) 841-851 DOI : 10.1093/aje/kwm149.

O. Diekmann, Ph. Getto, M. Gyllenberg

Stability and bifurcation analysis of Volterra functional equations in the light of suns and stars

SIAM Journal of Mathematical Analysis 39 (2007) 1023-1069

B. Boldin, M.J.M. Bonten, O. Diekmann

Relative effects of barrier precautions and topical antibiotics on nosocomial bacterial transmission : results of multi-compartment models

Bulletin of Mathematical Biology 69 (2007) 2227-2248

O. Diekmann, Y. Wang, P. Yan

Carrying simplices in discrete competitive systems and age-structured semelparous populations

Discrete and Continuous Dynamical Systems-Series A 20(1) (2008) 37-52

B. Boldin, O. Diekmann

Superinfections can induce evolutionarily stable coexistence of pathogens

Journal of Mathematical Biology 56 (2008) 635-672

A.A. de Koeijer, O. Diekmann, M.C.M. de Jong

Calculating the time to extinction of a reactivating virus, in particular bovine herpes virus

Math. Biosc. 212 (2008) 111-131

J.A.J. Metz, S.D. Mylius & O. Diekmann

When does evolution optimise?

Evolutionary Ecology Research 10 (2008) 629-654

J.A.J. Metz, S.D. Mylius & O. Diekmann

Even in the odd cases when evolution optimises, unrelated population dynamical details may shine through in the ESS.

Evolutionary Ecology Research 10 (2008) 655-666

O. Diekmann, M. Gyllenberg

The second half - with a quarter of a century delay

Math. Model. Nat. Phenom. 3 (2008) 36-48

H. Berestycki, O. Diekmann, C.J. Nagelkerke, P.A. Zegeling

Can a species keep pace with a shifting climate ?

Bulletin of Mathematical Biology 71 (2009) 399-429

O. Diekmann, S.A. van Gils

On the cyclic replicator equation and the dynamics of semelparous populations.

SIAM Journal on Applied Dynamical Systems 8 (2009) 1160 - 1189

A.M. de Roos, O. Diekmann, Ph. Getto, M.A. Kirkilionis

Numerical equilibrium analysis for structured consumer resource models

Bulletin of Mathematical Biology (2010) 72: 259-297

O. Diekmann, J.A.P. Heesterbeek, M.G. Roberts

The construction of next-generation matrices for compartmental epidemic models

Journal of the Royal Society Interface (2010) 7: 873-885.

O. Diekmann, M. Gyllenberg, J.A.J. Metz, S. Nakaoka, A.M. de Roos

Daphnia revisited : local stability and bifurcation theory for physiologically structured population models explained by way of an example

Journal of Mathematical Biology (2010) 61 : 277-318

O. Diekmann, J.A.J. Metz

How to lift a model for individual behaviour to the population level?

Philosophical Transactions Royal Society B.(2010) 365 : 3523-3530

O. Diekmann, M. Gyllenberg

Equations with infinite delay : Blending the abstract and the concrete

Journal of Differential Equations 252 (2012) 819-851

A.N. Swart, M. Tomasi, M. Kretzschmar, A.H. Havelaar, O. Diekmann

The protective effects of temporary immunity under imposed infection pressure

Epidemics 4 (2012) 43-47

Modeling Non-inherited Antibiotic Resistance

M. C. J. Bootsma, M. A. van der Horst, T. Guryeva, B. H. ter Kuile and O. Diekmann

Bulletin of Mathematical Biology 74 (2012) 1691-1705

K.Y. Leung, M.E.E. Kretzschmar, O. Diekmann  
Dynamic concurrent partnership networks incorporating demography  
Theoretical Population Biology 82 (2012) 229-239

D. Breda, O. Diekmann, W.F. de Graaf, A. Pugliese, R. Vermiglio  
On the formulation of epidemic models (an appraisal of Kermack and McKendrick)  
Journal of Biological Dynamics 6:sup2 (2012) 103-117  
DOI:10.1080/17513758.2012.716454

O. Diekmann & K. Korvasová  
A didactical note on the advantage of using two parameters in Hopf bifurcation studies  
Journal of Biological Dynamics 7:sup1 (2013) 21-30,  
DOI: 10.1080/17513758.2012.760758

D. Breda, O. Diekmann, S. Maset, R. Vermiglio  
A numerical approach to investigate the stability of equilibria for structured population models  
Journal of Biological Dynamics 7:sup1 (2013) 4-20  
DOI: 10.1080/17513758.2013.789562

B. Boldin, O. Diekmann  
An extension of the classification of evolutionary singular strategies in Adaptive Dynamics  
Journal of Mathematical Biology (2014) 69(4) : 905-940  
DOI 10.1007/s00285-013-0725-z

Henri Berestycki, Laurent Desvillettes, Odo Diekmann  
Can climate change lead to gap formation ?  
Ecological Complexity (2014) 20 : 264-270  
DOI information: 10.1016/j.ecocom.2014.10.006

Ricardo Borges, Angel Calsina, Silvia Cuadrado, Odo Diekmann  
Delay equation formulation of a cyclin-structured cell population model  
Journal of Evolution Equations (2014) 14 : 841-862  
DOI 10.1007/s00028-014-0241-7

W.F. de Graaf, M.E.E. Kretzschmar, P.M.F. Teunis, O. Diekmann  
A two-phase within host model for immune response and its application to  
seriological profiles of pertussis  
Epidemics (2014) 9 : 1-7  
10.1016/j.epidem.2014.08.002

KaYin Leung, Mirjam Kretzschmar, Odo Diekmann  
SI infection on a dynamic partnership network: characterization of  $R_0$   
Journal of Mathematical Biology (2015) 71: 1-56  
DOI 10.1007/s00285-014-0808-5

O. Diekmann & K. Korvasová  
Linearization of solution operators for state-dependent delay equations : a simple example

Discrete and Continuous Dynamical Systems A  
Volume 36, Number 1, January 2016 pp. 137–149 doi:10.3934/dcds.2016.36.137

Odo Diekmann, Philipp Getto, Yukihiko Nakata  
On the characteristic equation  $\lambda = \alpha_1 + (\alpha_2 + \alpha_3\lambda) e^{-\lambda}$  and its use in the context of a cell population model  
J. Math. Biol. (2016) 72:877–908 DOI 10.1007/s00285-015-0918-8

D. Breda, O. Diekmann, M. Gyllenberg, F. Scarabel, R. Vermiglio  
Pseudospectral discretization of nonlinear delay equations : new prospects for numerical bifurcation analysis  
SIAM J. Applied Dynamical Systems (2016)15(1): 1-23 DOI. 10.1137/15M1040931

D. Breda, O. Diekmann, D. Liessi, F. Scarabel  
Numerical bifurcation analysis of a nonlinear renewal equation  
Electronic Journal of Qualitative Theory of Differential Equations (2016) 65 : 1-24  
doi: 10.14232/ejqtde.2016.1.65

J.M. Cushing , O. Diekmann  
The many guises of  $R_0$  (a didactic note)  
Journal of Theoretical Biology (2016) 404 : 295-302 <http://dx.doi.org/10.1016/j.jtbi.2016.06.017>

A. Calsina, O. Diekmann, J.Z. Farkas  
Structured populations with distributed recruitment: from PDE to delay formulation  
Mathematical Methods in the Applied Sciences (2016) 39 : 5175-5191 DOI: 10.1002/mma.3898

F. Pfab, O. Diekmann, S. Bhattacharya, A. Pugliese  
Multiple coexistence equilibria in a two parasitoid one host model  
Theoretical Population Biology (2017) 113 : 34-46

K.Y. Leung, O. Diekmann  
Dangerous connections : on binding site models of infectious disease dynamics  
J. Math. Biol. (2017) 74 : 619-671

O. Diekmann, M. Gyllenberg, J.A.J. Metz  
Finite dimensional state representation of linear and nonlinear delay systems  
J. Dyn. Diff. Equat. DOI 10.1007/s10884-017-9611-5

Submitted

K.M.D. Chan, H. Nishiura, O. Diekmann, M.C.J. Bootsma  
The impact of population ageing on the severity of an epidemic outbreak  
Epidemics

O. Diekmann, W.F. de Graaf, M.E.E. Kretzschmar, P.F.M. Teunis  
Waning and boosting: on the dynamics of immune status

---

CONTRIBUTIONS TO PROCEEDINGS AND BOOKS :

---

O. Diekmann, Bifurcation and stability of steady states. In: Nonlinear Analysis I (N.M. Temme, ed.) MC Syllabus 26.1 (1976) 71-103.

O. Diekmann, Models and methods: a first impression. In : Nonlinear Diffusion Problems (O. Diekmann, N.M. Temme, eds.) MC Syllabus 28 (1977) 1-25.

B. Dijkhuis, O. Diekmann, E.J.M. Veling, Travelling fronts. In : Nonlinear Diffusion Problems (O. Diekmann, N.M. Temme, eds.) MC Syllabus 28 (1977) 84-108.

O. Diekmann, On a nonlinear integral equation arising in mathematical epidemiology. In: Differential Equations and Applications (W. Eckhaus & E.M. de Jager, eds.) North-Holland (1978) 133-140.

O. Diekmann, Integral equations and population dynamics. In: Numerical treatment of integral equations (H.J.J. te Riele, ed.) MC Syllabus 41 (1979) 117-149.

O. Diekmann, Clines in a discrete time model in population genetics. In: Biological Growth and Spread (W. Jäger, H. Rost, P. Tautu, eds.) Springer Lecture Notes in Biomathematics 38 (1980) 267-275.

O. Diekmann, D. Hilhorst  
How many jumps? Variational characterization of the limit solution of a singular perturbation problem. In: Geometrical Approaches to Differential Equations (R. Martini, ed.) Springer Lecture Notes in Mathematics 810 (1980) 159-180.

O. Diekmann, S.A. van Gils  
A variation - of - constants formula for nonlinear Volterra integral equations of convolution type. In: Nonlinear Differential Equations: Invariance, Stability and Bifurcation (P. de Mottoni & L. Salvadori, eds.) Academic Press (1981) 133-143.

O. Diekmann, A duality principle for delay equations. In: Equadiff 5 (M. Gregus, ed.) Teubner Texte zur Math. 47 (1982) 84-86.

O. Diekmann, The stable size distribution: an example in structured population dynamics. In: Mathematical Ecology (S.A. Levin & T.G. Hallam, eds.) Springer Lect. Notes in Biomath. 54 (1984) 90-96.

O. Diekmann, The dynamics of structured populations: some examples. In: Mathematics in Biology and Medicine (V. Capasso, E. Grosso, S.L. Paveri-Fontana, eds.) Springer Lect. Notes in Biomath. 57 (1985) 7-18.

In J.A.J. Metz, O. Diekmann (eds.) *The Dynamics of Physiologically Structured Populations*, Lecture Notes in Biomathematics 68, Springer-Verlag, 1986 :

J.A.J. Metz, O. Diekmann, Chapter I, A gentle introduction to structured population models: three worked examples, 3-45.

O. Diekmann , Chapter II, The cell size distribution and semigroups of linear operators, 46-77.

J.A.J. Metz, O. Diekmann, Chapter III, Formulating models for structured populations, 78-135.

J.A.J. Metz, O. Diekmann, Chapter IV, Age dependence, 136-184.

O. Diekmann, H.J.A.M. Heijmans (with contributions by F. van den Bosch), Chapter VI, Nonlinear dynamical systems: worked examples, perspectives and open problems, 203-243.

O. Diekmann, Dynamics in Bio-Mathematical Perspective. In: *Mathematics and Computer Science II* (M. Hazewinkel, J.K. Lenstra, L.G.L.T. Meertens, eds.) CWI Monograph 4, North-Holland (1986) 23-50.

O. Diekmann, On the mathematical synthesis of physiological and behavioural mechanisms and population dynamics. In: *Mathematical Topics in Population Biology, Morphogenesis and Neurosciences* (E. Teramoto, M. Yamaguti, eds.) Springer Lect. Notes in Biomath. 71 (1987) 48-52.

O. Diekmann, Perturbed dual semigroups and delay equations. In: *Dynamics of Infinite Dimensional Systems* (S-N. Chow, J.K. Hale, eds.) NATO ASI-Series F37, Springer, 1987, 67-73.

Ph. Clément, O. Diekmann, M. Gyllenberg, H.J.A.M. Heijmans and H.R. Thieme  
Perturbation theory for dual semigroups III. Nonlinear Lipschitz continuous perturbations in the sun-reflexive case. In: G. DaPrato & M. Iannelli (eds.) '*Volterra Integro-Differential Equations in Banach Spaces and Applications*', Pitman Research Notes in Mathematics 190 (1989) 67-89 (Longman).

Ph. Clément, O. Diekmann, M. Gyllenberg, H.J.A.M. Heijmans and H.R. Thieme  
Perturbation theory for dual semigroups IV. The intertwining formula and the canonical pairing. In: Ph. Clément, S. Invernizzi, E. Mitidieri & I.I. Vrabie (eds.) '*Semigroup Theory and Applications*', Lecture Notes in Pure Appl. Math. 116 (1989) 95-116 (Marcel Dekker).

O. Diekmann, M. Gyllenberg, H.J.A.M. Heijmans  
When are two  $C_0$ -semigroups related by a bounded perturbation? In: Ph. Clément, S. Invernizzi, E. Mitidieri & I.I. Vrabie (eds.) '*Semigroup Theory and Applications*', Lecture Notes in Pure Appl. Math. 116 (1989) 153-162 (Marcel Dekker).

O. Diekmann, On semigroups and populations. In: G. Fusco, M. Iannelli, L. Salvadori (eds.), *Advanced Topics in the Theory of Dynamical Systems*, Academic Press (1989) 125-135.

J.A.J. Metz, O. Diekmann,  
Exact finite dimensional representations of models for physiologically structured populations. I. the abstract foundations of linear chain trickery. In: J.A. Goldstein, F. Kappel, W. Schappacher (eds.), *Differential Equations with Applications in Biology, Physics and Engineering*, Lecture Notes in Pure and Applied Mathematics 133 (1991) 269-289 (Marcel Dekker).

O. Diekmann, M. Gyllenberg, H.R. Thieme

Perturbation theory for dual semigroups. V. Variation-of-constants formulas. In: Ph. Clément, E. Mitidieri, B. de Pagter (eds.), *Semigroup Theory and Evolution Equations*, Lecture Notes in Pure and Applied Mathematics 135 (1991) 107-123 (Marcel Dekker).

O. Diekmann, M. Gyllenberg, H.R. Thieme

Semigroups and renewal equations on dual Banach spaces with applications to population dynamics. In: S. Busenberg & M. Martelli (eds.), *Delay Differential Equations and Dynamical Systems*, Springer LNIM 1475 (1991) 116-129.

O. Diekmann, S.A. van Gils

The center manifold for delay equations in the light of suns and stars. In: M. Roberts, I.N. Stewart (eds.) *Singularity Theory and Its Applications*, Warwick, 1989, Part II (Springer LNIM) 1463 (1991) 122-141.

O. Diekmann, S.M. Verduyn Lunel

A new short proof of an old folk theorem in functional differential equations. In: Ph. Clément, E. Mitidieri, B. de Pagter (eds.), *Semigroup Theory and Evolution Equations*, Lecture Notes in Pure and Applied Mathematics 135 (1991) 101-106 (Marcel Dekker).

O. Diekmann, Modelling infectious diseases in structured populations. In: B.D. Sleeman & R.J. Jarvis (eds), *Ordinary and Partial Differential Equations*, vol. III, Pitman RNiMS 254 (1991) 67-79 (Longman, Harlow).

O. Diekmann, An invitation to structured (meta) population models. In: *Patch Dynamics* (S.A. Levin, T.M. Powell and J. H.Steele, eds) Springer Lect. Notes in Biomath. 96 (1993) 162-175 (Springer).

O. Diekmann, J.A.J. Metz (1994) On the reciprocal relationship between life histories and population dynamics.

In: *Frontiers of Mathematical Biology*. (Levin, S.A. ed.) Lecture Notes in Biomathematics 100 (1994) 263-279 (Springer).

O. Diekmann, M. Gyllenberg, J.A.J. Metz, H.R. Thieme

The 'cumulative' formulation of (physiologically) structured population models.

In: *Evolution equations, control theory and biomathematics* (Ph. Clément and G. Lumer, eds.), Lect. Notes in Pure Applied Math. 155 (1994) 145-154 (Marcel Dekker)

O. Diekmann, J.A.P. Heesterbeek, J.A.J. Metz

The legacy of Kermack and McKendrick.

In: *Epidemic Models: Their Structure and Relation to Data*  
Publications of the Newton Institute 5, Editor: D. Mollison  
Cambridge Univ. Press 1995, 95-115

M.C.M. de Jong, O. Diekmann, J.A.P. Heesterbeek

How does transmission of infection depend on population size?

In: *Epidemic Models: Their Structure and Relation to Data*  
Publications of the Newton Institute 5, Editor: D. Mollison



Cambridge Univ. Press 1995, 84-94

O. Diekmann, Reflections on models for epidemics triggered by the case of Phocine Distemper Virus among seals.

In : Case Studies in Mathematical Modelling : Ecology, Physiology and Cell Biology (H.G.Othmer, F.R.Adler, M.A.Lewis & J.C.Dallon, eds) Prentice Hall; 1997 51-59.

O. Diekmann, Modeling and analysing physiologically structured populations.

pp. 1-37 in : Mathematics Inspired by Biology , Springer LNIM 1714 , V. Capasso & O. Diekmann (eds.) 1999

O. Diekmann, The mathematical description of the dynamics of structured populations : a brief outline.

In : Proceedings of the International Conference on Reaction-Diffusion Systems : Theory and Applications (M. Mimura & H. Okamoto, eds.) RIMS, Kyoto, 2002, pp 1-8

O. Diekmann, M. Kirkilionis

Population dynamics : a mathematical bird's eye view.

pp. 323-340 in : Trends in Nonlinear Analysis (M. Kirkilionis, S. Krömker, R. Rannacher, F. Tomi, eds.) Springer Verlag, Heidelberg, 2002

O. Diekmann

Aanstekelijkheid gevangen in een getal.

In : Vakantiecursus 2002 - Wiskunde en Gezondheid (J. van de Craats, ed.) CWI Syllabus 50, Amsterdam, 2002, pp 51 - 61

O. Diekmann , S.A. van Gils, Invariance and symmetry in a year-class model.

In : Bifurcation, Symmetry and Patterns. Birkhauser Trends in Mathematics ; 2003 J. Buescu, S. Castro, A.P. Dias & I. Labouriau (eds.) 141-150

O. Diekmann, M. Gyllenberg, J.A.J. Metz

Physiologically structured population models : Towards a general mathematical theory. Pages 5-20 in : Mathematics for Ecology and Environmental Sciences

Y. Takeuchi, Y. Iwasa, K. Sato (eds.), Springer 2007

O. Diekmann, M. Gyllenberg

Abstract delay equations inspired by population dynamics

In : Functional Analysis and Evolution Equations. The Günter Lumer Volume.

(H. Amann, W. Arendt, M. Hieber, F. Neubrander, S. Nicaise, J. von Below, eds.) Birkhauser (2007) pp. 187-200

K.Y. Leung, M.E.E. Kretzschmar, O. Diekmann

Mean field at distance one

In: Temporal Network Epidemiology (N. Masuda, P. Holme, eds.) Theoretical Biology, DOI 10.1007/978-981-10-5287-3\_5 Springer Nature

-----

MISCELLANEOUS :

---

O. Diekmann, Over niet-lineaire integraalvergelijkingen en mathematische epidemiologie, Thesis, Universiteit van Amsterdam, 1978.

O. Diekmann, J.A.J. Metz (in Dutch)  
Een dialoog over een krachtige bastaard, Inaugurale Rede, RU Leiden, 1986.

O. Diekmann, J.A.J. Metz  
Exploring linear chain trickery for physiologically structured populations, CWI Quarterly 2 (1989) 3-14.

O. Diekmann, F.B. Christiansen, R. Law (eds.) Evolutionary Dynamics.  
Special Issue 5/6 Volume 34 J. Math. Biol. 1996

O. Diekmann, Mathematical Epidemiology of Infectious Diseases  
Images of SMC Research 1996 , 201-207

M.C.M. de Jong, A. Bouma, O. Diekmann, J.A.P. Heesterbeek  
Modelling transmission : mass action and beyond.  
letter in : Trends in Ecology and Evolution 17 (2002) 64

O. Diekmann, Spatial deterministic epidemics by Linda Rass and John Radcliffe/Bioterrorism: Mathematical modeling applications in homeland security edited by H.T. Banks and Carlo Castillo-Chavez , Book Review, Bull AMS 42 (2005) 521-527

Comment on "Linking population-level models with growing networks: A class of epidemic models"  
by Martin C.J. Bootsma and Odo Diekmann, Physical Review E 74 (2006) 018101

O. Diekmann, Mathematical Biology , M.A. Lewis e.a. (eds.)  
Book Review in Jahresber. Deutsch. Math. Ver. 113 (2011) 45-48

J. Corander, O. Diekmann, T. Koski (guest editors)  
Special Issue: A tribute to Mats Gyllenberg, on the occasion of his 60th birthday  
Journal of Mathematical Biology, Volume 72, Issue 4 March, 2016

J. Corander, O. Diekmann, T. Koski  
A tribute to Mats Gyllenberg, on the occasion of his 60th birthday (editorial note)  
J. Math. Biol. (2016) 72:793–795 DOI 10.1007/s00285-016-0965-9

A.M. de Roos, O. Diekmann, P. Getto, M.A. Kirkilionis  
Erratum to : Numerical Equilibrium Analysis for structured consumer resource models  
Bull. Math. Biol. (2016) 78 : 350-351 DOI 10.1007/s11538-015-0138-9

Tegenlicht. Afscheidscollege UU, 2013. <https://dspace.library.uu.nl/handle/1874/288627>

O. Diekmann, M. Gyllenberg, J.A.J. Metz, S. Nakaoka, A.M. de Roos

Erratum to : Daphnia revisited: local stability and bifurcation theory for physiologically structured population models explained by way of an example, J. Math. Biol. (2010) 61:277-318  
DOI 10.1007/s00285-009-0299-y

---

REPORTS :

---

O. Diekmann, Bijna vrije grenslagen, MC Report TN 78 (1973) (in Dutch).

O. Diekmann, Asymptotic expansions of certain numbers related to the gamma function, MC Report TN 80 (1975)

O. Diekmann, N.M. Temme, J.G. Verwer  
Berekening van een ruimteladingseffect, MC Report TN 85 (1976) (in Dutch).

O. Diekmann, A nonlinear integral equation describing the geographical spread of infection: the hair-trigger effect, travelling waves and the asymptotic speed of propagation, Istituto per le Applicazioni del Calcolo 'Mauro Picone', Report III, 139 (1978).

O. Diekmann, Volterra integral equations and semigroups of operators, MC Report TW 197 (1980).

O. Diekmann, S.A. van Gils, Hopf bifurcation for Volterra convolution equations, MC Report TW 226 (1982).

O. Diekmann, M. Gyllenberg, H.R. Thieme, S.M. Verduyn Lunel, A cell-cycle model revisited, Report AM-R9305, CWI, 1993