Reidun Twarock

List of Publications by Year
in descending order

86 papers	2,393 citations	172207 29 h-index	233125 45 g-index
92 all docs	92 docs citations	92 times ranked	1484 citing authors

#	Article	IF	Citations
1	A tiling approach to virus capsid assembly explaining a structural puzzle in virology. Journal of Theoretical Biology, 2004, 226, 477-482.	0.8	120
2	The Three-dimensional Structure of Genomic RNA in Bacteriophage MS2: Implications for Assembly. Journal of Molecular Biology, 2008, 375, 824-836.	2.0	105
3	A multiscale model of virus pandemic: Heterogeneous interactive entities in a globally connected world. Mathematical Models and Methods in Applied Sciences, 2020, 30, 1591-1651.	1.7	105
4	Solving a Levinthal's paradox for virus assembly identifies a unique antiviral strategy. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 5361-5366.	3.3	102
5	Packaging signals in single-stranded RNA viruses: natureâ€™s alternative to a purely electrostatic assembly mechanism. Journal of Biological Physics, 2013, 39, 277-287.	0.7	86
6	Packaging Signals in Two Single-Stranded RNA Viruses Imply a Conserved Assembly Mechanism and Geometry of the Packaged Genome. Journal of Molecular Biology, 2013, 425, 3235-3249.	2.0	80
7	Direct Evidence for Packaging Signal-Mediated Assembly of Bacteriophage MS2. Journal of Molecular Biology, 2016, 428, 431-448.	2.0	80
8	HBV RNA pre-genome encodes specific motifs that mediate interactions with the viral core protein that promote nucleocapsid assembly. Nature Microbiology, 2017, 2, 17098.	5.9	69
9	Genomic RNA folding mediates assembly of human parechovirus. Nature Communications, 2017, 8, 5.	5.8	67
10	Structural puzzles in virology solved with an overarching icosahedral design principle. Nature Communications, 2019, 10, 4414.	5.8	66
11	Degenerate RNA Packaging Signals in the Genome of Satellite Tobacco Necrosis Virus: Implications for the Assembly of a T= 1 Capsid. Journal of Molecular Biology, 2011, 413, 51-65.	2.0	65
12	The Impact of Viral RNA on Assembly Pathway Selection. Journal of Molecular Biology, 2010, 401, 298-308.	2.0	64
13	Revealing the density of encoded functions in a viral RNA. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 2227-2232.	3.3	64
14	A modelling paradigm for RNA virus assembly. Current Opinion in Virology, 2018, 31, 74-81.	2.6	62
15	Mathematical virology: a novel approach to the structure and assembly of viruses. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2006, 364, 3357-3373.	1.6	60
16	Simple Rules for Efficient Assembly Predict the Layout of a Packaged Viral RNA. Journal of Molecular Biology, 2011, 408, 399-407.	2.0	59
17	Master equation approach to the assembly of viral capsids. Journal of Theoretical Biology, 2006, 242, 713-721.	0.8	55
18	RNA-Mediated Virus Assembly: Mechanisms and Consequences for Viral Evolution and Therapy. Annual Review of Biophysics, 2019, 48, 495-514.	4.5	54

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19	Intra- and intermolecular atomic-scale interactions in the receptor binding domain of SARS-CoV-2 spike protein: implication for ACE2 receptor binding. Physical Chemistry Chemical Physics, 2020, 22, 18272-18283.	1.3	53
20	Evolution of a virus-like architecture and packaging mechanism in a repurposed bacterial protein. Science, 2021, 372, 1220-1224.	6.0	53
21	Rewriting natureâ€™s assembly manual for a ssRNA virus. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 12255-12260.	3.3	47
22	Affine extensions of the icosahedral group with applications to the three-dimensional organisation of simple viruses. Journal of Mathematical Biology, 2009, 59, 287-313.	0.8	46
23	Building a viral capsid in the presence of genomic RNA. Physical Review E, 2013, 87, 022717.	0.8	45
24	On the interaction mechanisms of a p53 peptide and nutlin with the MDM2 and MDMX proteins: A Brownian dynamics study. Cell Cycle, 2013, 12, 394-404.	1.3	38
25	Bacteriophage MS2 genomic RNA encodes an assembly instruction manual for its capsid. Bacteriophage, 2016, 6, e1157666.	1.9	38
26	Mechanical and Assembly Units of Viral Capsids Identified via Quasi-Rigid Domain Decomposition. PLoS Computational Biology, 2013, 9, e1003331.	1.5	35
27	Affine extension of noncrystallographic Coxeter groups and quasicrystals. Journal of Physics A, 2002, 35, 1551-1574.	1.6	33
28	Principles Governing the Self-Assembly of Coiled-Coil Protein Nanoparticles. Biophysical Journal, 2016, 110, 646-660.	0.2	31
29	Assembly of infectious enteroviruses depends on multiple, conserved genomic RNA-coat protein contacts. PLoS Pathogens, 2020, 16, e1009146.	2.1	31
30	Impact of Hydrogen Bonding in the Binding Site between Capsid Protein and MS2 Bacteriophage ssRNA. Journal of Physical Chemistry B, 2017, 121, 6321-6330.	1.2	30
31	Hamiltonian path analysis of viral genomes. Nature Communications, 2018, 9, 2021.	5.8	30
32	All-atom normal-mode analysis reveals an RNA-induced allostery in a bacteriophage coat protein. Physical Review E, 2010, 81, 031908.	0.8	27
33	Assembly models forPapovaviridaebased on tiling theory. Physical Biology, 2005, 2, 175-188.	0.8	25
34	Structural constraints on the three-dimensional geometry of simple viruses: case studies of a new predictive tool. Acta Crystallographica Section A: Foundations and Advances, 2013, 69, 140-150.	0.3	25
35	Blueprints for viral capsids in the family of Polyomaviridae. Journal of Theoretical Biology, 2008, 253, 808-816.	0.8	24
36	The Impact of Viral RNA on the Association Rates of Capsid Protein Assembly: Bacteriophage MS2 as a Case Study. Journal of Molecular Biology, 2010, 400, 935-947.	2.0	23

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37	Programmable polymorphism of a virus-like particle. Communications Materials, 2022, 3, 7.	2.9	22
38	Viruses and fullerenes â€“ symmetry as a common thread?. Acta Crystallographica Section A: Foundations and Advances, 2014, 70, 162-167.	0.0	21
39	RNA Virus Evolution via a Quasispecies-Based Model Reveals a Drug Target with a High Barrier to Resistance. Viruses, 2017, 9, 347.	1.5	20
40	Mathematical models for tubular structures in the family of. Bulletin of Mathematical Biology, 2005, 67, 973-987.	0.9	18
41	A crystallographic approach to structural transitions in icosahedral viruses. Journal of Mathematical Biology, 2012, 64, 745-773.	0.8	18
42	A new paradigm for the roles of the genome in ssRNA viruses. Future Virology, 2013, 8, 531-543.	0.9	18
43	Novel Kacâ€“Moody-type affine extensions of non-crystallographic Coxeter groups. Journal of Physics A: Mathematical and Theoretical, 2012, 45, 285202.	0.7	17
44	Peptide Inhibitors of Viral Assembly: A Novel Route to Broad-Spectrum Antivirals. Journal of Chemical Information and Modeling, 2012, 52, 770-776.	2.5	17
45	Comparing antiviral strategies against COVID-19 via multiscale within-host modelling. Royal Society Open Science, 2021, 8, 210082.	1.1	17
46	Quasicrystal Lie algebras. Physics Letters, Section A: General, Atomic and Solid State Physics, 1998, 246, 209-213.	0.9	16
47	Affine extensions of non-crystallographic Coxeter groups induced by projection. Journal of Mathematical Physics, 2013, 54, 093508.	0.5	16
48	Characterization of the Ligand Receptor Encounter Complex and Its Potential for in Silico Kinetics-Based Drug Development. Journal of Chemical Theory and Computation, 2012, 8, 314-321.	2.3	15
49	Emerging Topics in Physical Virology. , 2010, , .		15
50	An Intracellular Model of Hepatitis B Viral Infection: An In Silico Platform for Comparing Therapeutic Strategies. Viruses, 2021, 13, 11.	1.5	13
51	On the Origin of Order in the Genome Organization of ssRNA Viruses. Biophysical Journal, 2011, 101, 774-780.	0.2	12
52	Asymmetric Genome Organization in an RNA Virus Revealed via Graph-Theoretical Analysis of Tomographic Data. PLoS Computational Biology, 2015, 11, e1004146.	1.5	12
53	Dynamic network approach for the modelling of genomic sub-complexes in multi-segmented viruses. Nucleic Acids Research, 2018, 46, 12087-12098.	6.5	11
54	New Insights into Viral Architecture via Affine Extended Symmetry Groups. Computational and Mathematical Methods in Medicine, 2008, 9, 221-229.	0.7	10

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55	Percolation Theory Reveals Biophysical Properties of Virus-like Particles. ACS Nano, 2021, 15, 12988-12995.	7.3	10
56	An age-structured model of hepatitis B viral infection highlights the potential of different therapeutic strategies. Scientific Reports, 2022, 12, 1252.	1.6	9
57	Nonicosahedral pathways for capsid expansion. Physical Review E, 2013, 88, 032710.	0.8	8
58	A group theoretical approach to structural transitions of icosahedral quasicrystals and point arrays. Journal of Physics A: Mathematical and Theoretical, 2016, 49, 175203.	0.7	8
59	Classification of capped tubular viral particles in the family of Papovaviridae. Journal of Physics Condensed Matter, 2006, 18, S375-S387.	0.7	7
60	Structural transformations in quasicrystals induced by higher dimensional lattice transitions. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2012, 468, 1452-1471.	1.0	7
61	On the subgroup structure of the hyperoctahedral group in six dimensions. Acta Crystallographica Section A: Foundations and Advances, 2014, 70, 417-428.	0.0	6
62	Dysregulation of Hepatitis B Virus Nucleocapsid Assembly in vitro by RNA-binding Small Ligands. Journal of Molecular Biology, 2022, 434, 167557.	2.0	6
63	In vitro functional analysis of gRNA sites regulating assembly of hepatitis B virus. Communications Biology, 2021, 4, 1407.	2.0	6
64	Beyond Quasi-Equivalence: New Insights Into Viral Architecture via Affine Extended Symmetry Groups. , 2010, , 59-83.		5
65	Orbits of crystallographic embedding of non-crystallographic groups and applications to virology. Acta Crystallographica Section A: Foundations and Advances, 2015, 71, 569-582.	0.0	4
66	A coarse-grained model of the expansion of the human rhinovirus 2 capsid reveals insights in genome release. Journal of the Royal Society Interface, 2019, 16, 20190044.	1.5	4
67	The impact of local assembly rules on RNA packaging in a T = 1 satellite plant virus. PLoS Computational Biology, 2021, 17, e1009306.	1.5	4
68	Representations of Uh(su(N))derived from quantum flag manifolds. Journal of Mathematical Physics, 1997, 38, 1161-1182.	0.5	3
69	Local rules for the self-assembly of a non-quasi-equivalent viral capsid. Physical Review E, 2022, 105, .	0.8	3
70	Polyomaviridae Assembly Polymorphism from an Energy Landscape Perspective. Computational and Mathematical Methods in Medicine, 2008, 9, 245-256.	0.7	2
71	Surface stresses in complex viral capsids and non-quasi-equivalent viral architectures. Journal of the Royal Society Interface, 2020, 17, 20200455.	1.5	2
72	The Role of Symmetry in Conformational Changes of Viral Capsids: A Mathematical Approach. Natural Computing Series, 2014, , 217-240.	2.2	2

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73	Quadratic algebras in traffic flow models. Reports on Mathematical Physics, 2003, 51, 381-389.	0.4	1
74	Mathematical Virology. Journal of Theoretical Medicine, 2005, 6, 67-68.	0.5	1
75	The physics of virus assembly. Physical Biology, 2010, 7, 040301.	0.8	1
76	DNA Cages with Icosahedral Symmetry inÂBionanotechnology. Natural Computing Series, 2009, , 141-158.	2.2	1
77	Therapeutic interfering particles exploiting viral replication and assembly mechanisms show promising performance: a modelling study. Scientific Reports, 2021, 11, 23847.	1.6	1
78	A MATHEMATICAL APPROACH TO STRUCTURAL TRANSITIONS IN VIRAL CAPSIDS. International Journal of Modern Physics Conference Series, 2012, 09, 11-23.	0.7	0
79	Structure and RNA Recognition in Recombinant STNV Capsids. Biophysical Journal, 2012, 102, 641a.	0.2	0
80	Viral Genome Conformations and Contacts across Different Lifecycle Stages. Proceedings (mdpi), 2020, 50, .	0.2	0
81	Conservation of Genetically-Embedded Virus Assembly Instructions: A Novel Route to Antiviral Therapy. Proceedings (mdpi), 2020, 50, 87.	0.2	0
82	Mathematical Modeling of Virus Architecture. , 2021, , 248-256.		0
83	Genome Packaging. , 2021, , 488-494.		0
84	Structural characterization of genomic RNA-coat protein contacts in single-stranded RNA viruses by high-resolution cryo-EM. Access Microbiology, 2020, 2, .	0.2	0
85	Mathematical Virology. Inference, 2020, 5, .	0.0	0
86	Dataset of high-throughput ligand screening against the RNA Packaging Signals regulating Hepatitis B Virus nucleocapsid formation. Data in Brief, 2022, 42, 108206.	0.5	0