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教育研究上の業績		
	(著 書)	

## 1. 國谷紀良

Mathematical Analysis for Epidemic Models with Heterogeneity 東京大学博士論文,全 71p. (2013) http://hdl.handle.net/2261/56016

2. ミンモ・イアネリ、稲葉寿、國谷紀良

人口と感染症の数理:年齢構造ダイナミクス入門

東京大学出版会,全 216p. (2014)

(分担執筆) 第 6,7 章 pp.122-170 を担当

# 3. Toshikazu Kuniya

On the relationship between the basic reproduction number and the shape of the spatial domain in: Khalid Hattaf, Hemen Dutta 編

Mathematical Modelling and Analysis of Infectious Diseases

Springer, 全 342p. (2019)

(分担執筆) 第2章 pp.37-59 を担当

4. 國谷紀良, 稲葉寿

COVID-19 の数理モデル解析

於:稲葉寿 編

感染症の数理モデル 増補版

培風館,全 342p. (2020)

(分担執筆) 第 10 章 pp.310-333 を担当

5. 二コラ・バカエル, 稲葉寿, <u>國谷紀良</u>, 中田行彦, 竹内康博 人口と感染症の数理はいかに創られてきたか: 個体群ダイナミクスの数学史 東京大学出版会, 全 215p. (2022) (分担執筆) 第 17-21 章 pp.124-155 を担当

# 6. Toshikazu Kuniya

Hopf bifurcation in an SIR epidemic model with psychological effect and distributed time delay in: Hemen Dutta, Khalid Hattaf 編

Advances in Epidemiological Modeling and Control of Viruses

Elsevier, 全 372p. (2023)

(分担執筆) 第5章 pp.145-168 を担当

(学 術 論 文)

- ※ Web of Science に登録されている学術誌等に掲載されている論文等
- (a. 学会誌, 専門誌等に掲載された論文)
- 1. Yukihiko Nakata, Toshikazu Kuniya

Global dynamics of a class of SEIRS epidemic models in a periodic environment Journal of Mathematical Analysis and Applications, Vol.363, No.1, pp.230-237, 2010

#### 2. X Toshikazu Kuniya

Global stability analysis with a discretization approach for an age-structured multigroup SIR epidemic model

Nonlinear Analysis: Real World Applications, Vol.12, No.5, pp.2640-2655, 2011

# 3. X Toshikazu Kuniya, Yukihiko Nakata

Permanence and extinction for a nonautonomous SEIRS epidemic model Applied Mathematics and Computation, Vol.218, No.18, pp.9321-9331, 2012

## 4. X Toshikazu Kuniya

Global stability of a multi-group SVIR epidemic model Nonlinear Analysis: Real World Applications, Vol.14, No.2, pp.1135-1143, 2013

## 5. X Yoshiaki Muroya, Yoichi Enatsu, Toshikazu Kuniya

Global stability of extended multi-group SIR epidemic models with patches through migration and cross patch infection

Acta Mathematica Scientia, Vol.33, No.2, pp.341-361, 2013

## 6.\* Yoshiaki Muroya, Yoichi Enatsu, Toshikazu Kuniya

Global stability for a multi-group SIRS epidemic model with varying population sizes Nonlinear Analysis: Real World Applications, Vol.14, No.3, pp.1693-1704, 2013

# 7. X Toshikazu Kuniya, Hisashi Inaba

Endemic threshold results for an age-structured SIS epidemic model with periodic parameters Journal of Mathematical Analysis and Applications, Vol.402, No.2, pp.477-492, 2013

## 8. \* Toshikazu Kuniya, Mimmo Iannelli

R0 and the global behavior of an age-structured SIS epidemic model with periodicity and vertical transmission

Mathematical Biosciences and Engineering, Vol.11, No.4, pp.929-945, 2014

## 9. X Jinliang Wang, Jingmei Pang, Toshikazu Kuniya

A note on global stability for malaria infections model with latencies Mathematical Biosciences and Engineering, Vol.11, No.4, pp.995-1001, 2014

# 10.※ <u>Toshikazu Kuniya</u>, Yoshiaki Muroya, Yoichi Enatsu

Threshold dynamics of an SIR epidemic model with hybrid of multigroup and patch structures Mathematical Biosciences and Engineering, Vol.11, No.6, pp.1375-1393, 2014

## 11. X Yoshiaki Muroya, Huaixing Li, Toshikazu Kuniya

Complete global analysis of an SIRS epidemic model with graded cure and incomplete recovery rates Journal of Mathematical Analysis and Applications, Vol.410, No.2, pp.719-732, 2014

## 12. X Toshikazu Kuniya

Existence of a nontrivial periodic solution in an age-structured SIR epidemic model with time periodic coefficients

Applied Mathematics Letters, Vol.27, pp.15-20, 2014

## 13. \* Toshikazu Kuniya, Yoshiaki Muroya

Global stability of a multi-group SIS epidemic model for population migration Discrete and Continuous Dynamical Systems Series B, Vol.19, No.4, pp.1105-1118, 2014

# 14. X Yoshiaki Muroya, Huaixing Li, Toshikazu Kuniya

On global stability of a nonresident computer virus model Acta Mathematica Scientia, Vol.34, No.5, pp.1427-1445, 2014

# 15. X Jinliang Wang, Jingmei Pang, Toshikazu Kuniya, Yoichi Enatsu

Global threshold dynamics in a five-dimensional virus model with cell-mediated, humoral immune responses and distributed delays

Applied Mathematics and Computation, Vol.241, pp.298-316, 2014

## 16. X Yoshiaki Muroya, Toshikazu Kuniya

Further stability analysis for a multi-group SIRS epidemic model with varying total population size Applied Mathematics Letters, Vol.38, pp.73-78, 2014

## 17. Yukihiko Nakata, Yoichi Enatsu, Hisashi Inaba, Toshikazu Kuniya, 他 2 名

Stability of epidemic models with waning immunity

SUT Journal of Mathematics, Vol.50, No.2, pp.205-246, 2014

# 18. X Yoshiaki Muroya, Toshikazu Kuniya

Global stability of nonresident computer virus models

Mathematical Methods in the Applied Sciences, Vol.38, No.2, pp.281-295, 2015

## 19. X Toshikazu Kuniya, Ryo Oizumi

Existence result for an age-structured SIS epidemic model with spatial diffusion Nonlinear Analysis: Real World Applications, Vol.23, pp.196-208, 2015

7 11 7 2711

# 20. X Yoshiaki Muroya, Toshikazu Kuniya, Jinliang Wang

Stability analysis of a delayed multi-group SIS epidemic model with nonlinear incidence rates and patch structure

Journal of Mathematical Analysis and Applications, Vol.425, No.1, pp.415-439, 2015

## 21. X Jinilang Wang, Ran Zhang, Toshikazu Kuniya

The stability analysis of an SVEIR model with continuous age-structure in the exposed and infectious classes

Journal of Biological Dynamics, Vol.9, No.1, pp.73-101, 2015

## 22. X Jinliang Wang, Ran Zhang, Toshikazu Kuniya

Mathematical analysis for an age-structured HIV infection model with saturation infection rate Electronic Journal of Differential Equations, Vol.2015, No.33, pp.1-19, 2015

## 23.※ Yoshiaki Muroya, Toshikazu Kuniya

Global stability for a delayed multi-group SIRS epidemic model with cure rate and incomplete recovery rate

International Journal of Biomathematics, Vol.8, No.4, 1550048, 全 30p., 2015

## 24. Jinliang Wang, Yoshiaki Muroya, Toshikazu Kuniya

Global stability of a time-delayed multi-group SIS epidemic model with nonlinear incidence rates and patch structure

Journal of Nonlinear Sciences Applications, Vol.8, pp.578-599, 2015

# 25.% Toshikazu Kuniya, Yoshiaki Muroya

Global stability of a multi-group SIS epidemic model with varying total population size Applied Mathematics and Computation, Vol.265, pp.785-798, 2015

# 26. X Jinliang Wang, Ran Zhang, Toshikazu Kuniya

Global dynamics for a class of age-infection HIV models with nonlinear infection rate Journal of Mathematical Analysis and Applications, Vol.432, No.1, pp.289-313, 2015

## 27. \*\* Yoshiaki Muroya, Toshikazu Kuniya, Yoichi Enatsu

Global stability of a delayed multi-group SIRS epidemic model with nonlinear incidence rates and relapse of infection,

Discrete and Continuous Dynamical Systems Series B, Vol.20, No.9, pp.3057-3091, 2015

# 28. X Toshikazu Kuniya, Jinliang Wang, Hisashi Inaba

A multi-group SIR epidemic model with age structure

Discrete and Continuous Dynamical Systems Series B, Vol.21, No.10, pp.3515-3550, 2016

# 29. X Jinliang Wang, Ran Zhang, Toshikazu Kuniya

A note on dynamics of an age-of-infection cholera model

Mathematical Biosciences and Engineering, Vol.13, No.1, pp.227-247, 2016

# 30. X Jinliang Wang, Ran Zhang, Toshikazu Kuniya

The dynamics of an SVIR epidemiological model with infection age

IMA Journal of Applied Mathematics, Vol.81, No.2, pp.321-343, 2016

## 31. <u>Toshikazu Kuniya</u>, Hideki Sano

Application of the backstepping method to the prediction of increase or decrease of infected population Theoretical Biology and Medical Modelling, Vol.13, No.15, 全 10p., 2016

## 32. \* Ryo Oizumi, Toshikazu Kuniya, Yoichi Enatsu

Reconsideration of r/K selection theory using stochastic control theory and nonlinear structured population models

PLoS ONE, Vol.11, No.6, 全 20p., 2016

## 33. \* Jinliang Wang, Jie Yang, Toshikazu Kuniya

Dynamics of a PDE viral infection model incorporating cell-to-cell transmission Journal of Mathematical Analysis and Applications, Vol.444, No.2, pp.1542-1564, 2016

## 34. ※ Toshikazu Kuniya

Numerical approximation of the basic reproduction number for a class of age-structured epidemic models

Applied Mathematics Letters, Vol.73, pp.106-112, 2017

## 35. \* Toshikazu Kuniya, Jinliang Wang

Lyapunov functions and global stability for a spatially diffusive SIR epidemic model Applicable Analysis, Vol.96, No.11, pp.1935-1960, 2017

# 36.% Jinliang Wang, Xianning Liu, <u>Toshikazu Kuniya</u>, Jingmei Pang

Global stability for multi-group SIR and SEIR epidemic models with age-dependent susceptibility Discrete and Continuous Dynamical Systems Series B, Vol.22, No.7, pp.2795-2812, 2017

## 37. \* Junyuan Yang, Yuming Chen, Toshikazu Kuniya

Threshold dynamics of an age-structured epidemic model with relapse and nonlinear incidence IMA Journal of Applied Mathematics, Vol.82, No.3, pp.629-655, 2017

38. Jinliang Wang, Xiaoqing Yu, Heidi Lynn Tessmer, <u>Toshikazu Kuniya</u>, Ryo Omori Modelling infectious diseases with relapse: a case study of HSV-2

Theoretical Biology and Medical Modelling, Vol.14, No.13,全 20p., 2017

# 39. Yoichi Enatsu, Jinliang Wang, Toshikazu Kuniya

Impact of non-separable incidence rates on global dynamics of virus model with cell-mediated, humoral immune responses

Journal of Nonlinear Sciences and Applications, Vol.10, No.10, pp.5201-5218, 2017

# 40. Mostafa Adimy, Abdennasser Chekroun, Toshikazu Kuniya

Delayed nonlocal reaction-diffusion model for hematopoietic stem cell dynamics with Dirichlet boundary conditions

Mathematical Modelling of Natural Phenomena, Vol.12, No.6, pp.1-22, 2017

## 41. \* Toshikazu Kuniya, Hisashi Inaba, Junyuan Yang

Global behavior of SIS epidemic models with age structure and spatial heterogeneity Japan Journal of Industrial and Applied Mathematics, Vol.35, No.2, pp.669-706, 2018

# 42.※ Toshikazu Kuniya, Jinliang Wang

Global dynamics of an SIR epidemic model with nonlocal diffusion Nonlinear Analysis: Real World Applications, Vol.43, pp.262-282, 2018

## 43. \* Jinliang Wang, Min Guo, Toshikazu Kuniya

Mathematical analysis for a multi-group SEIR epidemic model with age-dependent relapse Applicable Analysis, Vol.97, No.10, pp.1751-1770, 2018

# 44.※ Gergely Röst, Toshikazu Kuniya, 他 2 名

Global dynamics of an epidemiological model with age-of-infection dependent treatment rate Ricerche di Mathematica, Vol.67, No.1, pp.125-140, 2018

# 45. X Abdennasser Chekroun, Toshikazu Kuniya

Stability and existence results for a time-delayed nonlocal model of hematopoietic stem cells dynamics Journal of Mathematical Analysis and Applications, Vol.463, No.2, pp.1147-1168, 2018

## 46. \* Toshikazu Kuniya

Stability analysis of an age-structured SIR epidemic model with a reduction method to ODEs Mathematics, Vol.6, No.9,全 10p., 2018

# 47.※ Junyuan Yang, Toshikazu Kuniya, 他 2 名

Evaluation of the tuberculosis transmission of drug-resistant strains in mainland china Journal of Biological Systems, Vol.26, No.4, pp.533-552, 2018

# 48. X Jinliang Wang, Jing Wang, Toshikazu Kuniya

Analysis of an age-structured multi-group heroin epidemic model Applied Mathematics and Computation, Vol.347, pp.78-100, 2019

## 49.**※** Toshikazu Kuniya

Global behavior of a multi-group SIR epidemic model with age structure and an application to the chlamydia epidemic in Japan

SIAM Journal on Applied Mathematics, Vol.79, No.1, pp.321-340, 2019

## 50. X Toshikazu Kuniya

Hopf bifurcation in an age-structured SIR epidemic model Applied Mathematics Letters, Vol.92, pp.22-28, 2019

# 51. X Junyuan Yang, Toshikazu Kuniya, Xiaofeng Luo

Competitive exclusion in a multi-strain SIS epidemic model on complex networks Electronic Journal of Differential Equations, Vol.2019, No.6, pp.1-30, 2019

# 52.※ Kosaku Kitagawa, <u>Toshikazu Kuniya</u>, 他 4 名

Mathematical analysis of a transformed ODE from a PDE multiscale model of hepatitis C virus infection

Bulletin of Mathematical Biology, Vol.81, No.5, pp.1427-1441, 2019

# 53. Abdennasser Chekroun, Mohammed Nor Frioui, <u>Toshikazu Kuniya</u>, Tarik Mohammed Touaoula Global stability of an age-structured epidemic model with general Lyapunov functional Mathematical Biosciences and Engineering, Vol.16, No.3, pp.1525-1553, 2019

## 54.% Kento Okuwa, Hisashi Inaba, Toshikazu Kuniya

Mathematical analysis for an age-structured SIRS epidemic model Mathematical Biosciences and Engineering, Vol.16, No.5, pp.6071-6102, 2019

## 55. \* Mostafa Adimy, Abdennasser Chekroun, Toshikazu Kuniya

Coupled reaction-diffusion and difference system of cell-cycle dynamics for hematopoiesis process with Dirichlet boundary conditions

Journal of Mathematical Analysis and Applications, Vol.479, No.1, pp.1030-1068, 2019

# 56. Abdennasser Chekroun, Toshikazu Kuniya

An infection age-space-structured SIR epidemic model with Dirichlet boundary condition Mathematical Modelling of Natural Phenomena, Vol.14, No.505,全 22p., 2019

## 57. X Jinliang Wang, Fanglin Xie, Toshikazu Kuniya

Analysis of a reaction-diffusion cholera epidemic model in a spatially heterogeneous environment Communications in Nonlinear Science and Numerical Simulation, Vol.80, No.104951, 全 20p., 2020

# 58. X Abdennasser Chekroun, Toshikazu Kuniya

An infection age-space structured SIR epidemic model with Neumann boundary condition Applicable Analysis, Vol.99, No.11, pp.1972-1985, 2020

# 59. X Toshikazu Kuniya

Prediction of the epidemic peak of coronavirus disease in Japan Journal of Clinical Medicine, Vol.9, No.789, 全 7p., 2020

60. Abdennasser Chekroun, Mohammed Nor Frioui, <u>Toshikazu Kuniya</u>, Tarik Mohammed Touaoula Mathematical analysis of an age structured heroin-cocaine epidemic model

Discrete and Continuous Dynamical Systems Series B, Vol.25, No.11, pp.4449-4477, 2020

# 61. \* Abdennasser Chekroun, Toshikazu Kuniya

Global threshold dynamics of an infection age-structured SIR epidemic model with diffusion under the Dirichlet boundary condition

Journal of Differential Equations, Vol.269, No.8, pp.117-148, 2020

## 62. X Soufiane Bentout, Abdennasser Chekroun, Toshikazu Kuniya

Parameter estimation and prediction for coronavirus disease outbreak 2019 (COVID-19) in Algeria AIMS Public Health, Vol.7, No.2, pp.306-318, 2020

# 63. X Toshikazu Kuniya, Hisashi Inaba

Possible effects of mixed prevention strategy for COVID-19 epidemic: massive testing, quarantine and social distancing

AIMS Public Health, Vol.7, No.3, pp.490-503, 2020

# 64. X Toshikazu Kuniya

Evaluation of the effect of the state of emergency for the first wave of COVID-19 in Japan Infectious Disease Modelling, Vol.5, pp.580-587, 2020

# 65. X Toshikazu Kuniya, Tarik Mhammed Touaoula,

Global stability for a class of functional differential equations with distributed delay and non-monotone bistable nonlinearity

Mathematical Biosciences and Engineering, Vol.17, No.6, pp.7332-7352, 2020

## 66.※ Dimitri Breda, Toshikazu Kuniya 他 2 名

Collocation of next-generation operators for computing the basic reproduction number of structured populations

Journal of Scientific Computing, Vol.85, No.40, 全 33p., 2020

# 67. X Yasuharu Tokuda, Toshikazu Kuniya

Prediction of COVID-19 cases during Tokyo's Olympic and Paralympic Games Journal of General and Family Medicine, Vol.22, No.4, pp.171-172, 2021.

## 68. X Kazuki Shimizu, Toshikazu Kuniya, Yasuharu Tokuda

Modeling population-wide testing of SARS-CoV-2 for containing COVID-19 pandemic in Okinawa, Japan

Journal of General and Family Medicine, Vol.22, No.4, pp.173-181, 2021

# 69. Kento Okuwa, Hisashi Inaba, Toshikazu Kuniya

An age-structured epidemic model with boosting and waning of immune status Mathematical Biosciences and Engineering, Vol.18, No.5, pp.5707-5736, 2021

# 70. X Jinliang Wang, Ran Zhang, Toshikazu Kuniya

A reaction-diffusion Susceptible-Vaccinated-Infected-Recovered model in a spatially heterogeneous environment with Dirichlet boundary condition

Mathematics and Computers in Simulation, Vol.190, pp.848-865, 2021

# 71. X Toshikazu Kuniya

Structure of epidemic models: toward further applications in economics

The Japanese Economic Review, Vol.72, pp.581-607, 2021

## 72. \* Mostafa Adimy, Abdennasser Chekroun, Toshikazu Kuniya

Traveling waves of a differential-difference diffusive Kermack-McKendrick epidemic model with agestructured protection phase

Journal of Mathematical Analysis and Applications, Vol.505, No.125464, 全 27p., 2022

# 73. X Jinliang Wang, Xiaoqing Wu, Toshikazu Kuniya

Analysis of a diffusive HBV model with logistic proliferation and non-cytopathic antiviral mechanisms Communications in Nonlinear Science and Numerical Simulation, Vol.106, pp.106110, 全 20p., 2022

# 74. X Jinliang Wang, Wenjing Wu, Toshikazu Kuniya

Analysis of a degenerated reaction-diffusion cholera model with spatial heterogeneity and stabilized total humans

Mathematics and Computers in Simulation, Vol.198, pp.151-171, 2022

## 75. X Toshikazu Kuniya

Recurrent epidemic waves in a delayed epidemic model with quarantine Journal of Biological Dynamics, Vol.16, No.1, pp.619-639, 2022

## 76. \* Mostafa Adimy, Abdennasser Chekroun, Toshikazu Kuniya

Global asymptotic stability for a distributed delay differential-difference system of a Kermack-McKendrick SIR model

Applicable Analysis, Vol.102, Vol.12, pp.3463-3475, 2023

# 77. \* Toshikazu Kuniya, Tarik Mohhamed Touaoula

Global dynamics for a class of reaction-diffusion equations with distributed delay and non-monotone bistable nonlinearity

Applicable Analysis, Vol.102, No.14, pp.3946-3970, 2023

# 78. \*\* Jinliang Wang, Wenjing Wu, Toshikazu Kuniya

Global threshold analysis on a diffusive host-pathogen model with hyperinfectivity and nonlinear incidence functions

Mathematics and Computers in Simulation, Vol.203, pp. 767-782, 2023

## 79. Soufiane Bentout, Salih Djilali, Toshikazu Kuniya, Jinliang Wang

Mathematical analysis of a vaccination epidemic model with nonlocal diffusion Mathematical Methods in the Applied Sciences, Vol.46, No.9, pp.10970-10994, 2023

80.※ Hideki Sano, <u>Toshikazu Kuniya</u>

Observer design for an infectious disease PDE model considering reinfection Automatica, Vol.155, No.111091, 全 10p., 2023

# 81.※ Toshikazu Kuniya, Hisashi Inaba

Hopf bifurcation in a chronological age-structured SIR epidemic model with age-dependent infectivity Mathematical Biosciences and Engineering, Vol.20, No.7, pp.13036-13060, 2023

- 82. Mostafa Adimy, Abdennasser Chekroun, <u>Toshikazu Kuniya</u>, Hanene Meghelli Global stability of a SEIR discrete delay differential-difference system with protection phase Mathematical Methods in the Applied Sciences, Vol.46, No.17, pp.17818-17838, 2023
- 83. Adnane Boukhouima, El Mehdi Lotfi, Marouane Mahrouf, Noura Yousfi, <u>Toshikazu Kuniya</u>
  A general fractional-order viral infection model with cell-to-cell transmission and adaptive immunity
  Progress in Fractional Differentiation and Applications, Vol.9, No.1, pp.41-63, 2023
- 84. ※ Jinliang Wang, Meiyu Cao, <u>Toshikazu Kuniya</u>

Dynamical analysis of an age-space structured malaria epidemic model Zeitschrift für angewandte Mathematik und Physik, Vol.74, No. 214, 全 27p., 2023

- (b. 国際会議等の Proceedings に掲載された論文)
- 1. Yoshiaki Muroya, <u>Toshikazu Kuniya</u>, Yoichi Enatsu

Global analysis of a multi-group SIR epidemic model with nonlinear incidence rates and distributed moving delays between patches

Proceedings of the 10th Colloquium on the Qualitative Theory of Differential Equations Vol.2016, No.16, pp.1-36, 2016

#### 2. Toshikazu Kuniya

Hopf bifurcation in a delayed epidemic model with vaccination 2022 13th Asian Control Conference, pp.1246-1249, 2022

(c. 国内会議の論文集)

該当なし

(d. 研究機関の紀要,報告等に掲載された論文)

該当なし

(学 術 講 演)

# 1. 國谷紀良

年齢構造化感染症モデルに対する基本再生産数 Ro の数値近似 日本応用数理学会, 2017 年度年会, 武蔵野大学, 2017 (若手優秀講演賞 対象講演)

#### 2. 國谷紀良

構造化感染症モデルの安定性解析 日本数理生物学会,第 27 回年会,北海道大学, 2017 (研究奨励賞 受賞講演)

## 3. Toshikazu Kuniya

Stability and instability of an age-structured SIR epidemic model

The 7th China-India-Japan-Korea International Conference on Mathematical Biology, China, 2019 (invited lecture)

# 4. Toshikazu Kuniya

Applications of age-structured epidemic models for intervention evaluation Macroeconomics Workshop, The University of Tokyo, 2022 (invited lecture)

# 5. 國谷紀良

ワクチン配分戦略

コロナ政策研究会, 名古屋 JR ゲートタワーホテル, 2022 (招待講演)

# 6. 國谷紀良

構造化感染症モデルを利用した COVID-19 の疫学的考察 日本人口学会 第75回大会, 南山大学, 2023

# 7. Toshikazu Kuniya

Hopf bifurcation in a chronological age-structured SIR epidemic model 12th Colloquium on the Qualitative Theory of Differential Equations, Hungary, 2023 (invited lecture)

(上記以外に 108 編)