

CURRICULUM VITAE

CIVIL STATUS

Name : CHEMBO KOUOMOU Yanne

Born on : July 2nd, 1976 at Blanc-Mesnil (France)

Sex : Male

Marital status: Single

Nationality : Cameroonian

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Dr. Yanne CHEMBO K.
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ACADEMIC BACKGROUND

- **December 2006: PhD Degree of Physics**
Starting date: November 2002
Title: Nonlinear Dynamics of Semiconductor Laser Systems with Feedback: Applications to Optical Chaos Cryptography, Radar Frequency Generation and Transverse Mode Control.
Supervisor: Prof. Pere Colet.
Place: Mediterranean Institute for Advanced Studies (formerly IMEDEA, now IFISC), University of the Balearic Islands, Palma de Mallorca, SPAIN.
- **November 2005: PhD Degree of Physics**
Starting date: November 2001
Title: Contribution for the Exploitation of Coherent and Incoherent Nonlinear Phenomena in Telecommunication.
Supervisor: Prof. Paul Wofo.
Place: The University of Yaoundé I, Yaoundé, CAMEROON.
- **November 2004: Post-Master's Certificate of Advanced Studies in Physics**
Place: Mediterranean Institute for Advanced Studies (formerly IMEDEA, now IFISC), University of the Balearic Islands, Palma de Mallorca, SPAIN.
- **October 2001: Master's Degree (with thesis) of Physics**
Place: The University of Yaoundé I, Yaoundé, CAMEROON.
- **September 2001: Bachelor's Degree of Telecommunication Engineering**
Place: National Advanced School of Posts and Telecommunications, Yaoundé, CAMEROON.
- **March 1999: Postgraduate Degree of Physics**
Place: The University of Yaoundé I, Yaoundé, CAMEROON.
- **June 1997: Bachelor's Degree of Physics**
Place: The University of Yaoundé I, Yaoundé, CAMEROON.

ACTUAL POSITION

- **Since March 2007:** Post-doctoral researcher at the FEMTO-ST Institute (CNRS), Besançon, FRANCE.

RESEARCH INTERESTS

- Modelization and analysis of nonlinear dynamical systems
- Optoelectronics, photonics, and laser physics
- Optical telecommunication networks, lightwave and microwave technologies

PUBLICATIONS

1. **Dynamic instabilities of microwaves generated with optoelectronic oscillators**
Y. Kouomou Chembo, L. Larger, H. Tavernier, R. Bendoula, E. Rubiola and P. Colet, *Optics Letters* **32**, 2571 (2007).
2. **Chaotic breathers in delayed electro-optical systems**
Y. Chembo Kouomou, P. Colet, L. Larger and N. Gastaud, *Physical Review Letters* **95**, 203903 (2005)
3. **Mismatch-induced bit error-rate in optical communications using semiconductor lasers with electro-optical feedback**
Y. Chembo Kouomou, P. Colet, L. Larger and N. Gastaud, *IEEE Journal of Quantum Electronics* **41**, 156 (2005).
4. **Effect of parameter mismatch on the synchronization of semiconductor lasers with electro-optical feedback**
Y. Chembo Kouomou, P. Colet, N. Gastaud and L. Larger, *Physical Review E* **69**, 056226 (2004)
5. **Triple resonant states and chaos control in an electrostatic transducer with two outputs**
Y. Chembo Kouomou and P. Woafu, *Journal of Sound and Vibrations* **270**, 75 (2004).
6. **Cluster synchronization in coupled chaotic semiconductor lasers and application to switching in chaos-secured communication networks**
Y. Chembo Kouomou and P. Woafu, *Optics Communications* **223**, 283 (2003).
7. **Transitions from spatiotemporal chaos to cluster and complete synchronization states in a shift-invariant set of nonlinear coupled oscillators**
Y. Chembo Kouomou and P. Woafu, *Physical Review E* **67**, 046205 (2003).
8. **Stability analysis for the synchronization of semiconductor lasers with ultra-high frequency current modulation**
Y. Chembo Kouomou and P. Woafu, *Physics Letters A* **308**, 381 (2003).
9. **Optimization and stability boundaries for the synchronization of semiconductor lasers with external optical feedback**
Y. Chembo Kouomou and P. Woafu, *Physical Review E* **67**, 026214 (2003).
10. **Generalized correlated states in a ring of coupled nonlinear oscillators with a local injection**
Y. Chembo Kouomou and P. Woafu, *Physical Review E* **66**, 066201 (2002).
11. **Stability and optimal parameters for continuous feedback chaos control**
Y. Chembo Kouomou and P. Woafu, *Physical Review E* **66**, 036205 (2002).

12. **Stability and optimization of chaos synchronization through feedback coupling with delay**
Y. Chembo Kouomou and P. Woafu, *Physics Letters A* **298**, 18 (2002).
13. **Stability and chaos control in electrostatic transducers**
Y. Chembo Kouomou and P. Woafu, *Physica Scripta* **62**, 255 (2000).

PROCEEDINGS

1. **Fast scale hyperchaos on top of slow scale periodicity in delayed dynamical systems**
Y. Chembo Kouomou, P. Colet, L. Larger and N. Gastaud, *1st IFAC conference on analysis and control of chaotic systems*, 375 (2006).
2. **Effect of chaotic noise on the performance of optical chaos cryptosystems**
Y. Chembo Kouomou, P. Colet, L. Larger and N. Gastaud, *Proc. SPIE Vol. 5847: Noise in communication systems*, 10 (2005).

CHAPTER OF BOOK

- Optimization of chaos synchronization and pattern formation in a lattice of nonlinear oscillators and semiconductor lasers**
Y. Chembo Kouomou and P. Woafu, *Recent Research Developments in Physics* **3**, 577 (2002).
Edited by S. G. Pandalai, Transworld Research Network, Kerala, INDIA

SEMINARS

- **Instituto Mediterráneo de Estudios Avanzados (IMEDEA)**
November 21st, 2006, Palma de Mallorca, SPAIN
“Generating ultra-pure radar frequencies with semiconductor lasers”.
- **Centre National d'Etudes Spatiales (CNES)**
June 27th, 2006, Toulouse, FRANCE
“A model for single-mode optoelectronic oscillators”.
- **Technical University of Darmstadt (DTU)**
August 3rd, 2004, Darmstadt, GERMANY
“Simultaneous fast-scale hyperchaos and slow-scale periodicity in delayed optical systems”.
- **Instituto Mediterráneo de Estudios Avanzados (IMEDEA)**
July 21st, 2004, Palma de Mallorca, SPAIN
“Hyperchaotic breathers in delayed optical systems”.
- **Instituto Mediterráneo de Estudios Avanzados (IMEDEA)**
December 18th, 2002, Esporles, SPAIN
“Analytical stability analysis for the synchronization of chaotic semiconductor lasers with external optical feedback or ultra-high frequency pumping-current modulation”.

PARTICIPATION TO INTERNATIONAL CONFERENCES

- **3rd “Rio de la Plata” Workshop on Noise, Chaos and Complexity in Lasers and Nonlinear Optics**
3-7 Décembre 2007, Punta del Este, URUGUAY
Présentation orale:
Stability properties of a pure microwave oscillation in a narrow-band electro-optic delay oscillator
Y. Kouomou Chembo, L. Larger et P. Colet.
- **Peyresq 2007 Summer School on Nonlinear Dynamics**
16-23 September 2007, Peyresq, FRANCE
- **Peyresq 2006 Summer School on Nonlinear Dynamics**
18-25 September 2006, Peyresq, FRANCE
- **Statistical Physics (Fises) 2006**
14-17 September 2006, Granada, SPAIN
Poster:
A stochastic model for optoelectronic radar-frequency generators.
Y. Chembo Kouomou, L. Larger, H. Tavernier, R. Bendoula, P. Colet and E. Rubiola
- **1st IFAC Conference on analysis and Control of Chaotic Systems**
28-30 June 2006, Reims, FRANCE
Oral Presentation:
Fast scale hyperchaos on top of slowscale periodicity in delayed dynamical systems
Y. Chembo Kouomou, P. Colet, L. Larger and N. Gastaud
- **9th Nonlinear Encounters**
8-10 March 2006, Poincaré Institute, Paris, FRANCE
- **2005 Gordon Research Conferences on Nonlinear Science**
June 26th-July 1st, 2005, Colby College, Waterville (ME), USA
- **The 3rd SPIE Conference on Noise and Fluctuations**
23-26 May 2005, Austin-Texas, USA
Oral presentation:
Effect of Chaotic Noise on the Performance of Optical Chaos Cryptosystems
Y. Chembo Kouomou, P. Colet, L. Larger and N. Gastaud
- **Dynamics Days 2004**
13-17 September 2004, Palma de Mallorca, SPAIN
Oral presentation:
Simultaneous fast-scale hyperchaos and slow-scale periodicity in delayed optical systems
Y. Chembo Kouomou, P. Colet, N. Gastaud and L. Larger
- **Summer School on New Concepts in Photonics and Optical Communications**
21-25 June 2004, Dijon, FRANCE
- **The 8th Experimental Chaos Conference**
14-17 June 2004, Florence, ITALY
Poster :
Coexistence of fast-scale hyperchaos and slow-scale periodicity in delayed optical systems
Y. Chembo Kouomou, N. Gastaud, L. Larger and P. Colet

- **School and Workshop on Dynamical Systems and Applications**
3-8 May 2004, Porto, PORTUGAL
Oral presentation:
Optical chaos cryptography using in semiconductor lasers with electro-optical feedback
Y. Chembo Kouomou, P. Colet, N. Gastaud and L. Larger
- **SPIE Photonics Europe 2004**
26-30 April 2004, Strasbourg, FRANCE
- **Dynamics Days 2003**
24-27 September 2003, Palma de Mallorca, SPAIN
Oral presentation:
On the mismatch-induced degradation of synchronization in hyperchaotic electro-optical systems
Y. Chembo Kouomou, P. Colet, N. Gastaud and L. Larger
- **Weierstrass Institute for Applied Analysis and Stochastics (WIAS) workshop on “Dynamics of semiconductor lasers”**
15-17 September 2003, Berlin, GERMANY
Oral presentation:
Influence of parameter mismatch on the performance of an electro-optical hyperchaotic communication scheme
Y. Chembo Kouomou, P. Colet, N. Gastaud and L. Larger
- **Bristol Centre for Applied Nonlinear Mathematics (BCNAM) conference on “Delayed Equations and their Applications”**
8-12 September 2003, Bristol, UNITED KINGDOM
- **School and Conference on Spatiotemporal Chaos**
Abdus Salam International Centre of Theoretical Physics (ICTP)
8-19 July 2002, Trieste, ITALY.
Oral presentation:
Analytical study of the transitions from spatiotemporal chaos to cluster and complete synchronization states in a shift-invariant set of nonlinear coupled oscillators
Y. Chembo Kouomou and P. Wofo
- **The 4th Edouard Bouchet – Abdus Salam Institute (EBASI) International Conference on Physics and High Technology**,
6-10 August 2001, Cotonou, BENIN
Oral presentation:
Synchronization of chaotic systems and application to secure communications
Y. Chembo Kouomou and P. Wofo

VISITS TO OTHER INSTITUTIONS

LONG STAYS

- **FEMTO-ST Institute, University of Franche-Comté**
From February 3rd to August 2nd, 2006 (6 months), Besançon, France
Topic: *Stability properties of optoelectronic oscillators.*
Collaboration with **Prof. Laurent Larger**
- **Institute for Research in Electronics and Applied Physics, University of Maryland**
From April 14th to July 14th, 2005 (3 months), College Park, Maryland, USA
Topic: *Fiber lasers for optical chaos cryptography*
Collaboration with **Prof. Rajarshi Roy**

SHORT STAYS

- **Technical University of Darmstadt**
2-5 August 2004, Darmstadt, GERMANY
Collaboration with **Prof. Ingo Fischer**.
- **Georgia-Tech Lorraine**
7-12 July 2003, Metz, FRANCE
Collaboration with **Prof. Laurent Larger**.

LANGUAGE SKILLS

French (native), **English** (very good), **Spanish** (very good)

Last update: February 2008