微分トポロジー便り No.3

もくじ

1. 「古典力学・量子力学とトポロジー」

代表者： 佐藤肇

科研費総合(A)「位相幾何学の総合的研究」より40万円もらえました。

開催予定 日時・場所 は以下のとうりです。

日時： ~~12月19日(末)~12月22日(土)~~

場所： 賢島の大阪商工会議所研修センター

この会に参加を希望する人，講演者の自薦・他薦筆くは 佐藤肇・小沢哲也・伊藤敏和に連絡して下さい。

WORKSHOP ON HOLOMORPHIC DYNAMICS GUANAJUATO, MEXICO

18 OF FEBRUARY - 1 OF MARCH 1991
(first announcement)

The CENTRO DE INVESTIGACION EN MATEMATICAS (CIMAT) will be organizing a 2 week workshop on Holomorphic Dynamics, in Guanajuato, Mexico (Iteration of Holomorphic Maps and Dynamics of Holomorphic Flows).

A partial list of confirmed participants is:

CHRISTIAN BONATTI (U. DIJON)
OMEGAR CALVO (CIMAT)
CESAR CAMACHO (IMPA)
DOMINIQUE CERVEAU (U. RENNES)
ADRIEN DOUADY (U. PARIS)
XAVIER GOMEZ-MONT (CIMAT)
YU ILIASHENKO (U. MOSCOW)
ALCIDES LINS-NETO (IMPA)
IGNACIO LUENGO (U.MADRID)
SANTIAGO LOPEZ DE MEDRANO (UNAM)
JOHN MILNOR (U. NEW YORK)
JESUS MUCINO (UNAM)
ROBERT MOUSSU (U. DIJON)
PAULO SAD (IMPA)
JOSE SEADE (UNAM)
S.M. VORONIN (CHELIABINSK U.)
S. YU YAKOVENKO (USSR ACADEMY OF SCIENCES)

FOR MORE INFORMATION CONTACT ONE OF THE ORGANIZERS: ADRIEN DOUADY, SANTIAGO LOPEZ DE MEDRANO, OR XAVIER GOMEZ-MONT (CIMAT, A.P. 402, GUANAJUATO, 36,000, MEXICO; CIMAT@UNAMVM1.BITNET)

2.

International Conference on Dynamical Systems, 1990 年 7 月 16 日 〜 21 日,
(フランス, リヨン市, リヨン高等師範学校) に参加して

東京大学理学部　　坪井　俊

この国際研究集会は, フランス科学研究機関 (CNRS) の企画した力学系理論研究年 (1989/90) の最後を締めくくるもので, エルゴード理論, 群作用, 葉層構造；双曲力学系；解析的力学系；実, 複素 1 次元力学系；ハミルトン力学系をテーマとするものでした。参加者はフランス, スイス, イギリス, 西ドイツ, イタリア, スペイン, ポルトガル, スエーデン, デンマーク, ルーマニア, ポーランド, ソビエト連邦, イスラエル, アメリカ合衆国, メキシコ, ブラジル, チリ, ウルグアイ, インド, 中国, 日本などから, 私の予想も主催者の予想もはるかに越える 250 人に達し, 日本からも Sannami, Shishikura 両氏と私が出席しました。1 週間の間, 午前中に 2 つの総合講演, 午後に 3 つの会議室に別れて 3 つの講演が行われ, また, セミナー室での討論も行われるというかなりハードなスケジュールでありましたが, ほとんどの参加者がリヨン高等師範学校の宿舎に泊まっていたこともあって, 多くの人と知合い, 議論することができました。講演の題名は以下のとおりです。3 つ平行して講演があるので直接的な興味を持っているところしか聞けなかったのが残念です。聞いたなかで, 特に印象に残っているのは次のようなものです。

Bonatti：3,4 次元閉多様体上の commuting vector fields の共通零点の存在を示した。

Ghys：恒等写像に近い有限個の real analytic diffeo で生成された群は discrete ならば自由群でない, という定理と関連した予想。

Labourie：C^∞ splitting を持つ contact Anosov flow は rank 1 symmetric space の geodesic flow であるというほとんど最終的な結果。これは数年前に

Kanai 氏の結果から始まった理論ですが，ほとんど行き着くところまで行ってしまったような印象を受けました。

Herman : Hamilton 系において Hamiltonian を少し deform して closed orbit が作れるという (Poincaré) 予想の反例。

Eliashberg : symplectomorphism classes, contactomorphism classes の話。とくに，R^n の bounded domain 上での 1 つの構造をその境界から決定できるかという問題について。

Hurder : $SL(n, \mathbf{Z})$ の 3 種の作用，mod p reduction をとおしての球面 S^k への作用，T^n への作用，$SL(n, \mathbf{R})/SL(n, \mathbf{Z})$ への作用を finite case, stable case, maybe stable case の典型的な場合として説明し，安定性についての結果を述べた。

Yoccoz : Mandelbrot set のある種の点では対応する Julia set が locally connected，またその点自身も connected な基本近傍系を持つこと。

Smillie : $\mathbf{C}^2$ の polynomial diffeomorphism に対しての研究。positive, negative filled-in Julia set の境界 J^+, J^- を考えると，その中で 1 つの saddle point の安定，不安定多様体は dense であること。よく準備された気持ちのよい講演で時間より早く終わった。

Camacho : CP^2 の holomorphic foliation の limit set に reasonable? な仮定を付けると linear foliation の rational map による引き戻しになってしまうという結果と nontrivial minimal set の存在についての予想。

（最近，Strasbourg の Martinet, Godbillon 両氏がなくなられたそうです。御冥福をお祈り致します。）

ECOLE NORMALE SUPÉRIEURE DE LYON

International conference on dynamical systems

(Special year C.N.R.S.)

16–21 juillet 1990

LYON – FRANCE

Scientific committee : M. Berry, A. Douady, M. Gromov, M. Herman, J. Moser, J. Palis, D. Sullivan.

Subjects : Ergodic theory and group actions, foliations. Hyperbolic systems.
Holomorphic dynamics. Real and complex one dimensional dynamics. Hamiltonian systems.

Confirmed speakers :

C. Bonatti	M. Gromov	R. Mañé	J. Smillie
J. Bourgain	M. Herman	J. Martinet	D. Sullivan
B. Branner	H. Hofer	J. Mather	T. Tsuboi
L. Carleson	J. Hubbard	J.-F. Mattei	S. Van Strien
C. Camacho	S. Hurder	W. de Melo	M. Viana
S. G. Dani	A. Katok	J.-P. Otal	C. Viterbo
J. Ecalle	F. Labourie	J. Palis	M. Wojtkowski
Y. Eliashberg	O. Lanford	F. Pham	J.-C. Yoccoz
J.-M. Gambaudo	F. Ledrappier	M. Pollicott	L.S. Young
E. Ghys	C. Lobry	R. Roussarie	E. Zehnder
X. Gómez-Mont	M. Lyubich	M. Shishikura	R. Zimmer

Time : The conference will take place in the Ecole Normale Supérieure de Lyon, 46 allée d'Italie, Lyon 07. The first talk is scheduled on Monday 16th, 11 a.m. ; the last talk will finish at 1 p.m. on Saturday 21st. The registration desk will be open on Sunday 15th from 1 p.m. to 8 p.m. as well as on Monday 16th from 8 a.m. on.

Registration : We request participants to fill out the enclosed registration form and return it as soon as possible. Registration fee of 200 FF (100 FF for students) to be paid on arrival.

Accomodation: The ENS Lyon has a limited number of double rooms at 90 FF per person per night. This opportunity will be available from Sunday night to Saturday noon. Rooms will be paid for upon arrival together with the registration fee. Participants who would like to stay in a hotel will find below a selected list of hotels. Meals can be taken in the ENS Lyon.

Hotels near the ENS Lyon :
Hôtel Mercure Pont Pasteur, ***, 70, Avenue Leclerc, 69007 LYON, tel. 78 58 68 53.   300 to 470 FF.
Hôtel Fimotel Lyon Gerland, **, 246, rue Marcel Mérieux, 69007 LYON, tel. 72 72 63 63.   300 FF.
Hôtel Ibis Lyon Gerland, **, 68, Avenue Leclerc, 69007 LYON, tel. 78 58 30 70.   250 to 300 FF.

Lundi 16 juillet – Monday, July 16th

11 h Grand Amphi : mot de bienvenue du directeur de l'ENS Lyon : *G. Aubert.*

11 h 15	**M. Gromov**	Grand Amphi	*Geometric problems in dynamical systems*

12 h 15 – 13 h 30   Restaurant   *Pause repas – lunch break*

14 h	**C. Bonatti**	Amphi A	*Indice et zéros communs de champs de vecteurs commutants*
14 h	**M. Pollicott**	Amphi B	*Zeta functions and the rate of mixing for hyperbolic and geodesic flows*
14 h	**M. Lyubich**	Amphi phys.	*Koebe principle in some problems of holomorphic and one dimensional dynamics*

15 h 30	**J.-P. Otal**	Amphi A	*Sur la géométrie symplectique de l'espace des géodésiques*
15 h 30	**L.S. Young**	Amphi B	*à préciser - to be annouced*
15 h 30	**S. Van Strien**	Amphi phys	*Topological and metric properties in one dimensional dynamics*

16 h 30   Hall Grand Amphi   *Pause café – coffee break*

17 h 30	**T.Tsuboi**	Amphi A	*On the foliated cobordism group*
17 h 30	**M. Viana**	Amphi B	*Homoclinic bifurcations and strange attractors*
17 h 30	**W. de Melo**	Amphi phys	*Analytical tools in one dimensional dynamics*

Mardi 17 juillet – Tuesday, July 17th

9 h 30	**J. Palis**	Grand Amphi	*A theory for homoclinic bifurcations and non hyperbolic (chaotic) dynamics*

10 h 30   Hall Grand Amphi   *Pause café – coffee break*

11 h	**E. Ghys**	Grand Amphi	*Difféomorphismes proches de l'identité*

12 h – 13 h 30   Restaurant   *Pause repas – lunch break*

14 h	**F. Ledrappier**	Amphi A	*Entropies et rigidité*
14 h	**F. Pham**	Amphi B	*Propagation des ondes et dynamique complexe*
14 h	**H. Hofer**	Amphi phys.	*Symplectic invariants*

15 h 30	**R. Roussarie**	Amphi A	*Sur quelques questions de la théorie des bifurcations des champs de vecteurs du plan*
15 h 30	**J. Ecalle**	Amphi B	*L'accélération et ses applications (1) aux équations différentielles (2) aux fonctions quasi-analytiques*

			(3) à la solution constructive de la conjecture de Dulac
15 h 30	C. Viterbo	Amphi phys	*Generating functions in symplectic geometry*

16 h 30   Hall Grand Amphi   *Pause café – coffee break*

17 h 30	F. Labourie	Amphi A	*Rigidity of Anosov flows with smooth stable and unstable foliations*
17 h 30		Amphi B	*à préciser - to be annouced*
17 h 30	J.-C. Sikorav	Amphi phys	*Lagrangian submanifolds of $\mathbb{R}^{2n}$ and cotangent bundles*

Mercredi 18 juillet – Wednesday, July 18th

9 h 30	J. Mather	Grand Amphi	*Variational construction of orbits of twist diffeomorphisms*

10 h 30   Hall Grand Amphi   *Pause café – coffee break*

11 h	M. Herman	Grand Amphi	*sera précisé ultérieurement*

12 h – 13 h 30   Restaurant   *Pause repas – lunch break*

Après-midi libre – free afternoon

Jeudi 19 juillet – Thursday, July 19th

9 h 30	J. Bourgain	Grand Amphi	*Théorèmes ergodiques et analyse harmonique*

10 h 30   Hall Grand Amphi   *Pause café – coffee break*

11 h	Ya. Eliashberg	Grand Amphi	*Boundaries of symplectic and contact manifolds seen from the interior*

12 h – 13 h 30   Restaurant   *Pause repas – lunch break*

14 h	R. Zimmer	Amphi A	*Measurable invariant metrics*
14 h	M. Shishikura	Amphi B	*Holomorphic surgery and rational maps and its application*
14 h	Z. Xia	Amphi phys.	*Non collision singularities in Newtonian systems*

15 h 30	S.G. Dani	Amphi A	*Flows on homogeneous spaces and diophantine approximation*
15 h 30	J. Hubbard	Amphi B	*Henon mappings and discrete groups*
15 h 30	P. Rabinowitz	Amphi phys	*Connecting orbits for hamiltonian systems*

16 h 30   Hall Grand Amphi   *Pause café – coffee break*

17 h 30	S. Hurder	Amphi A	*Rigidity for Anosov actions of higher rank lattices*
17 h 30	B. Branner	Amphi B	*Julia sets for cubic polynomials : the tableau technique*
17 h 30	P. Le Calvez	Amphi phys	*On periodic orbits of maps of the annulus and the torus*

Vendredi 20 juillet – Friday, July 20th

| 9 h 30 | J.-C. Yoccoz | Grand Amphi | *Récurrence du point critique d'un polynôme quadratique* |

10 h 30   Hall Grand Amphi   *Pause café – coffee break*

| 11 h | J. Smillie | Grand Amphi | *Dynamics in two complex variables* |

12 h – 13 h 30   Restaurant   *Pause repas – lunch break*

14 h	C. Camacho	Amphi A	*Limit sets of complex foliations*
14 h	O. Lanford	Amphi B	*Renormalization group methods for critical circle mappings*
14 h	M. Wojtkowski	Amphi phys.	*Ergodicity of hyperbolic systems with singularities*

15 h 30	X. Gomez-Mont	Amphi A	*Geometry and dynamics of a holomorphic flow*
15 h 30	J.M. Gambaudo	Amphi B	*Self-similar constructions in smooth dynamics : rigidity, smoothness and dimension*
15 h 30	F. Takens	Amphi phys	*Mixed spectra and transition to turbulence*

16 h 30   Hall Grand Amphi   *Pause café – coffee break*

17 h 30	J.-F. Mattei	Amphi A	*Déploiements de germes de feuilletages holomorphes singuliers*
17 h 30	C. Lobry	Amphi B	*Théorie des bifurcations dynamiques*
17 h 30		Amphi phys	*à préciser - to be annouced*

Samedi 21 juillet – Saturday, July 21th

| 9 h 30 | A. Katok | Grand Amphi | *à préciser - to be annouced* |

| 10 h 45 | D. Sullivan | Grand Amphi | *Universality and dynamical systems* |

11 h 45   Hall Grand amphi   *Buffet-apéritif de clôture du colloque*
Farewell drinks

MATHEMATICS RESEARCH CENTRE, UNIVERSITY OF WARWICK

Warwick Symposium (1989/90) on Partial Differential Equations in Geometry

WORKSHOP I

From Tuesday, 12th December until Friday, 15th December we will be holding 4 days of lectures which will be accessible to non specialists. Each speaker will give one lecture each day, to the following schedule:

PROGRAMME FOR EACH DAY FROM
TUESDAY 12TH TO FRIDAY 15TH DECEMBER

10.00-11.00	R. Bryant (Duke)	*Calibrations and 1st integrals, Willmore immersions (with slides), Exotic holonomy. Hamilton's solitons for the Ricci Flow in 3-D.*
11.30-12.30	A. Ancona (Orsay)	*Potential theory on manifolds.*
2.00-3.00	J-M. Coron (Orsay)	*Topics in harmonic maps and liquid crystals.*
3.30-4.30	M.J. Micallef (Warwick)	*Minimal surfaces and their applications.*

Lectures will take place in the Mathematics Institute Lecture Room 2.

We hope that participants will stay until Saturday, 16th December, for informal discussions and more advanced lectures. If you are interested in giving a talk, let us know.

Jim Eells   *Mario J. Micallef*

Wed, Nov 1, 1989

Warwick Symposium (1989/90) on Partial Differential Equations in Geometry

WORKSHOP I
AMENDMENTS AND ADDITIONS
TO PROGRAMME

Wednesday 13th Dec.	3.30-4.30	*Coull Quartet in Common room instead of Micallef.*
	4.45-5.45	L. Woodward: *Rigidity of minimal surfaces in* $\mathbb{C}P^n$.
	6.30pm	meet in Common Room to go for Indian meal in Leamington.
Thursday 14th Dec.	4.45-5.45	F. Burstall: *Birational correspondence of twistor spaces.*
	7.00pm	Buffet in Common Room.
Friday 15th Dec.	1.30-2.30	NEW TIME for J-M. Coron's lecture.
	3.30-4.30	Micallef's lecture.
	4.45-5.45	J.C. Wood *Harmonic morphisms of 3-manifolds.*
Saturday 16th Dec.	9.00-9.45	G. Gibbons: *The spacetime geometry of cosmic strings.*
	10.00-10.45	W.J. Zakrzewski: *Harmonic maps and solitons in relativistic models in 2+1 dimensions.*
	11.00-11.45	M. Micallef : continued.

Wed, Dec 13, 1989

CONFERENCE AND WORKSHOP
ON
SYMPLECTIC GEOMETRY

30th July - 25th August 1990
(Special Conference week 13th - 17th August 1990)

INVITED PARTICIPANTS

S Angenent	F Kirwan
V I Arnold	*D McDuff
M F Atiyah	*J Milnor
D Bennequin	B Pansu
*S Donaldson	*P Rabinowitz
J J Duistermaat	E Rees
*Y Eliashberg	J Robbin
A Floer	S Salamon
*A Givental	B Steer
M Gromov	*C Viterbo
*N Hitchin	*J G Wolfson
H Hofer	*E Zehnder
S Husseini	

* These people have accepted

To attend, please write to Alison Solman, Nonlinear Systems Laboratory, Mathematics Institute, University of Warwick, Coventry CV4 7AL, or e-mail ajs@math.warwick.ac.uk by 1st June. Partial support for the meeting has been awarded by SERC. Limited support for UK participants will be available, provided by the LMS.

Dietmar Salamon
16th January 1990

5. プレプリント

鈴本治夫 所有

* P. Dazord et G. Hector, Integration symplectique Des variétés
  de Poisson totalement aspheriques.

* A. Weinstein, Contact surgery and symplectic handlebodies.

小野 薫 所有

S. Stolz, Simply connected manifolds
   of positive scalar curvature

G. Bor - R. Montgomery, SO(3)-invariant Yang-Mills
   fields which are not self dual