

REPORT ON THE CONFERENCE
“PROBLEMS IN REAL ANALYSIS”
ŁÓDŹ, POLAND, JULY 11–13, 1994
AND
JOINT U.S.-POLISH WORKSHOP REAL
ANALYSIS
ŁÓDŹ, POLAND, JULY 14–19, 1994

CONFERENCE REPORT

The conference “Problems in Real Analysis” was held July 11–13, 1994 at the conference center of Łódź University, Łódź, Poland. The conference was organized Władysław Wilczyński (head of the conference), Marek Balcerzak (secretary) and Jacek Hejduk (secretary) and was financed by Łódź University. The **Exchange** editorial board wishes to thank the committee members, as well as Dorota Rogowska, an unofficial secretary, for the splendid job of organizing all aspects of the conference. We wish to acknowledge their efforts as well as the financial support of Łódź University.

The conference featured invited fifty-minute addresses by:

Krzysztof Ciesielski (*Morgantown, West Virginia*)

Clifford Weil (*East Lansing, Michigan*)

Lev Bukovský (*Košice, Slovakia*)

Jack Brown (*Auburn, Alabama*)

as well as twenty-nine twenty-minute contributed talks. Social highlights included the banquet on July 19.

The participants at the symposium included:

A. Andryszczak (Poland), M. Balcerzak (Poland), K. Banaszewski (Poland), K. Baron (Poland), R. Brackebush (USA), Jack Brown (USA), Jane Brown

(USA), Z. Bukovska (Slovakia), L. Bukovský (Slovakia), M. Chlebig (Slovakia), K. Ciesielski (USA), U. Darji (USA), D. Doliwa (Poland), Z. Duszyński (Poland), P. Eliaš (Slovakia), M. Evans (USA), J. Ewert (Poland), K. Flak (Poland), Małgorzata Filipczak (Poland), Mirosław Filipczak (Poland), T. Filipczak (Poland), Ch. Freiling (USA), R. Ger (Poland), Z. Grande (Poland), J. Hejduk (Poland), G. Horbaczewska (Poland), P. Humke (USA), J. Jędrzejewski (Poland), R. Johnson (USA), A. Katafiasz (Poland), B. Kirchheim (Slovakia), Z. Kominek (Poland), S. Krajci (Slovakia), I. Krzemińska (Poland), A. Kucia (Poland), A. Kubiś (Poland), G. Kwiecińska (Poland), M. Laczovich (Hungary), L. Larson (USA), I. Libicka (Poland), E. Lazarow (Poland), A. Maliszewski (Poland), M. Marciniak (Poland), A. Miller (USA), M. Morayne (Poland), J. Morgan (USA), K. Musiał (Poland), T. Natkaniec (Poland), J. Niewiarowski (Poland), A. Nowak (Poland), H. Pawlak (Poland), R. Pawlak (Poland), J. Peredko (Poland), Sz. Plewik (Poland), W. Poreda (Poland), D. Rogowska (Poland), A. Rychlewicz (Poland), G. Rzepecka (Poland), B. Szkopińska (Poland), M. Szyszkowski (Poland), B. Świątek (Poland), A. Tomaszewska (Poland), P. Vojtaš (Slovakia), E. Wagner-Bojakowska (Poland), E. Wajch (Poland), C. Weil (USA), W. Wilczyński (Poland), W. Wojdowski (Poland), S. Wroński (Poland).

WORKSHOP REPORT

Following the Conference, a joint U.S.-Polish Workshop in Real Analysis was held at the same location July 14–19, 1994. The workshop was organized from the Polish side by Władysław Wilczyński, Marek Balcerzak, Jacek Hejduk and Dorota Rogowska and from the American side by Krzysztof Ciesielski. It was financially supported by Łódź University for all local costs and by the National Science Foundation grant INT-9401673 for all the costs occurring in U.S., including the travel costs of the American participants.

The Workshop was run as an extended problem session. This means, it was concentrated more on doing research and less on presenting work that has already been done. This unusual approach created a great working environment and led to several new research results. The success of the Workshop was noted by many participants. Social highlights included a half-a-day trip to Zelazowa Wola (place of birth of F. Chopin) on Saturday, July 16, a camp fire picnic the same evening and one day trip to Kraków on Sunday, July 17.

The participants at the workshop included:

M. Balcerzak (Poland), R. Brackebush (USA), Jack Brown (USA), Jane Brown (USA), M. Chlebig (Slovakia), K. Ciesielski (USA), U. Darji (USA), D. Doliwa (Poland), M. Evans (USA), J. Ewert (Poland), K. Flak (Poland), M. Filipczak (Poland), Ch. Freiling (USA), Z. Grande (Poland), J. Hejduk (Poland), G.

Horbaczewska (Poland), P. Humke (USA), J. Jędrzejewski (Poland), R. Johnson (USA), A. Katafiasz (Poland), B. Koszela (Poland), A. Kubiś (Poland), G. Kwiecińska (Poland), L. Larson (USA), I. Libicka (Poland), E. Lazarow (Poland), A. Maliszewski (Poland), A. Miller (USA), J. Morgan (USA), T. Natkaniec (Poland), R. Pawlak (Poland), J. Peredko (Poland), D. Rogowska (Poland), A. Rychlewicz (Poland), G. Rzepecka (Poland), B. Szkopińska (Poland), T. Świątkowski (Poland), E. Wagner-Bojakowska (Poland), E. Wajch (Poland), C. Weil (USA), W. Wilczyński (Poland), W. Wojdowski (Poland).

PROGRAM of the ŁÓDŹ CONFERENCE

(The page number in the right hand column refers to the page of this issue on which a summary of the presentation is located.)

Monday, July 11

MORNING SESSION (CHAIR K. BARON)

- 9:00–9:15 Opening remarks 9:15–10:05 *K. Ciesielski* p. 379
 Where analysis, topology and set theory meet
- 10:25–10:45 *R.J. Pawlak* p. 383
 Darboux homotopies and Darboux retracts
- 10:50–11:10 *B. Kirchheim*
 Hausdorff measure and level sets of typical
 continuous mappings in Euclidean spaces
- 11:15–11:35 *J. Ewert*
 On almost quasi-continuous maps
- 11:55–12:15 *M. Laczkovich*
 Two scales of measurability
- 12:20–12:45 *A. Nowak and A. Kucia* p. 384
 Old and new sandwich theorems

AFTERNOON SESSION (CHAIR M. EVANS)

- 15:00–15:50 *C. Weil* p. 387
 Multiplying derivatives
- 16:00–16:20 *A. Miller* p. 392
 Compact subsets of the Baire space
- 16:40–17:00 *M. Chlebik*
 On containing given structures in
 large measurable sets

17:05–17:25 *E. Wajch*

On L_α -separation of sets by families of
real-valued functions and its possible applications

Tuesday, July 12

MORNING SESSION (CHAIR K. MUSIAL)

9:15–10:05 *L. Bukovsky* p. 394

Some thin sets of reals

10:25–10:45 *Sz. Plewik*

On b -concentrated measures

10:50–11:10 *Z. Grande* p. 396

On strong quasicontinuity and strong cliquishness

11:15–11:35 *J. Morgan* p. 401

Transcendental spaces

11:55–12:15 *P. Vojtas*

Some remarks on absolute convergence/divergence
of series

12:20–12:40 *R. Johnson*

Antiderivatives of Baire functions

AFTERNOON SESSION (CHAIR C. WEIL)

15:00–15:20 *Z. Kominek*

Convex functions and the core topology

15:25–15:45 *Ch. Freiling*

Tiling with squares and antisquares

15:50–16:10 *R. Ger* p. 402

Stability aspects of delta-convexity

16:30–16:50 *T. Natkaniec* p. 405

Fixed points and iterations of Darboux functions

16:55–17:15 *U. Darji* p. 406

Functions of small Borel classes

17:20–17:40 *M. Morayne* p. 407

Classification of Borel measurable functions

PROBLEM SESSION, 19:30–20:30 (CHAIR W. WILCZYŃSKI)

Wednesday, July 13

MORNING SESSION (CHAIR P. HUMKE)

9:15–10:05 *J. Brown* p. 411

Restriction theorems in real analysis

10:25–10:45 *G. Kwiecińska* p. 414

Strong semicontinuity of real functions

10:50–11:10	<i>G. Horbaczewska</i>	p. 416
	Core-density topologies	
11:15–11:35	<i>A. Maliszewski</i>	p. 418
	Sums and products of quasi-continuous functions	
11:55–12:15	<i>K. Musiał</i>	
	Measurability of pointwise limits of measurable sets	
12:20–12:40	<i>M. Evans</i>	p. 422
	Straining for the harmony amidst a cacophony of derivatives	
AFTERNOON SESSION (CHAIR M. LACZKOVICH)		
15:00–15:20	<i>K. Baron</i>	p. 424
	On the Cauchy difference	
15:25–15:45	<i>P. Elias</i>	
	Continuous hierarchy of trigonometric thin sets	
15:50–16:10	<i>J. Jędrzejewski - Z. Duszynski</i>	
	On the function of oscillation	
16:30–16:50	<i>W. Wilczyński</i>	p. 427
	On density points	

PROGRAM of the LÓDŹ WORKSHOP

(The page number in the right hand column refers to the page of this issue on which a summary of the presentation is located.)

Thursday, July 14

AFTERNOON SESSION (CHAIR J. JĘDRZEJEWSKI)		
15:00–15:30	<i>Z. Grande, T. Natkaniec, A. Maliszewski</i>	p. 429
	Some problems on almost continuous functions	
15:40–16:15	<i>P. Humke</i>	p. 433
	Three Problems in Euclidean Geometry	
16:35–17:00	<i>C. Weil</i>	p. 435
	Compositions with derivatives	
17:10–17:40	<i>J. Brown</i>	p. 411
	Restriction theorems	

Friday, July 15

MORNING SESSION (CHAIR C. FREILING)		
10:00–10:30	<i>L. Larson</i>	p. 436
	Some general methods for showing derivatives are in B_1	

- 10:45–12:15 *K. Ciesielski* p. 438
 Uniformly antisymmetric functions, uniformly anti-Schwarz functions
- 11:30–12:00 *M. Evans* p. 441
 First return differentiation
- 12:10–12:40 *U. Darji* p. 443
 On first return characterizations of Baire classes $\alpha \geq 1$
- 12:40–12:50 *E. Wajch*
 Some remarks on my yesterday's problems

Monday, July 18

MORNING SESSION (CHAIR K. CIESIELSKI)

- 10:00–10:30 *W. Wilczyński*
 Sequences of measurable functions
- 10:40–11:10 *M. Filipczak*
 Remarks on middle-size linear sets
- 11:30–12:00 *A. Miller*
 Solution of a problem on almost continuous functions
- 12:10–12:40 *D. Rogowska* p. 444
 Solution of the Baire order problem of Mauldin
- 12:45–12:55 *E. Lazarow, A. Maliszewski*
 Solution of a problem of Evans

Tuesday, July 19 MORNING SESSION (CHAIR J. BROWN)

- 10:00–10:30 *M. Balcerzak* p. 447
 On some ideals of sets
- 10:30–10:40 *M. Chlebik*
 An answer to M. Filipczak's question
- 10:45–11:10 *L. Larson* p. 450
 On generalized stochastic convergence
- 11:30–12:00 *J. Hejduk* p. 452
 Non-Baire sets
- 12:10–12:20 *R. Johnson*
 Is there a category analogue of the absolutely continuous functions?
- 12:25–12:40 *A. Miller*
 On a question of Wilczyński and Wagner