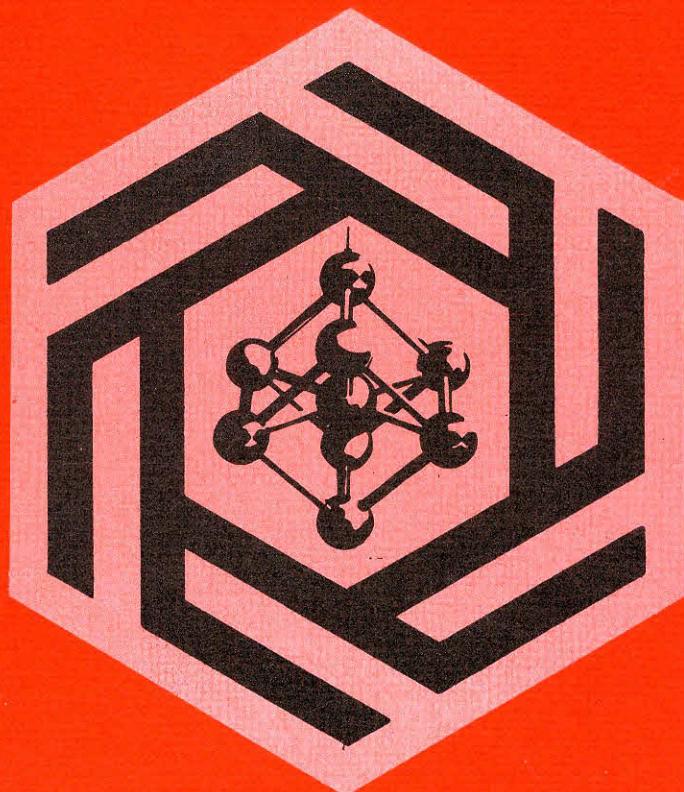


# ESSCIRC '82

Digest of technical Papers

Vrije Universiteit Brussel, September 22–24, 1982

Invited Papers  
and Contributed Papers



**BRUSSEL**

# ESSCIRC' 82

## Eighth European Solid-State Circuits Conference

September 22-24, 1982

Vrije Universiteit Brussel

Brussels, Belgium

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## September 22, 1982

Chairman : J. CORNU (Bell Tel. Antwerp-B)

9h50-10h35 Invited Paper

The impact of VLSI-circuits on automotive Electronics  
FISCHER (Bosch Reutlingen-D)

10h35 TELECOMMUNICATION CIRCUITS

10h35-11h A bipolar 4 × 4 crosspoint array for 140 MBIT data rates  
J. BURKHART, B. RALL, H.M. REIN, K. SCHLUTER

11h -11h30 COFFEE

11h30-11h55 Monolithic 70 V bipolar linedriver IC for PCM SLIC  
Johan M. DANNEELS, Luc J. VAN DEN BOSSCHE, Luc BIENSTMAN

11h55-12h20 Monolithic adaptive equalizer  
P.B. DENYER, C.F.N. COWAN, J. MAVOR, C. CLAYTON, J. PENNOCK, R. THOMSON, A.D. MILNE

12h20-12h45 Digital signal processors for PCM codec applications  
B. CONQ, J.P. LELOUP, P. SENN

9h - 9h30 Opening

Chairman : P. JESPERS (UCL Louvain La Neuve-B)

9h50 ANALOG MOS CIRCUITS

9h50-10h15 Applications of MOS transistors operated in the lateral bipolar mode in CMOS technology  
E. VITTOZ

10h15-10h40 Monochip stereo R.I.A.A. preamplifier, using NMOS S.C.-techniques  
P. VAN PETEGHEM, D. SALLAERTS, D. RABAHEY, W. SANSEN

10h40-11h05 Computer aided distortion analysis of switched capacitor filters in the frequency domain  
J. VANDEWALLE, J. RABAHEY, W. VERCROYSE, H. DE MAN

11h05-11h30 COFFEE

11h30-11h55 An automatic CAD tool for switched capacitors filters design : A method based on the generalized orchard argument  
Y. THERASSE, P. QUEBELS, P. JESPERS

11h55-12h20 A NMOS eight-channel programmable current generator for auditory nerve stimulation  
M. VAN PAEMEL, W. SANSEN, S. PEETERS

Lunch

Chairman : F. ANCEAU (IMAG Grenoble-F)

14h15 CAD

14h15-15h Invited Paper  
Advanced methods for testing VLSI components.  
J. MUCHA (T.U. Hannover-D)

15h -15h25 Computer aided layout of distributed CMOS static decoders  
D. AUBERT

15h25-15h50 A C-MOS PLA generator  
W.D. PRITCHARD

15h50-16h20 COFFEE

16h20-16h45 A totally self-checking CMOS ALU  
M. JUCKLER, S. DE MAHIEU, J.J.F. PEROTTO, C. TRULLEMANS

16h45-17h10 A new method for improved delay characterization of VLSI logic  
O. WAGNER, A. VOGEL, M.H. MC LEOD.

18h30 Reception

## September 23, 1982

Chairman : H. DE MAN (KUL Leuven-B)

9h - 9h45 Invited Paper

The design of VLSI design methods  
L. CONWAY (Xerox Palo Alto-USA)

9h45-10h30 Invited Paper

CMOS technologies and design strategies for VLSI  
B.T. MURPHY (Bell Labs Murray Hill-USA)

10h30-11h COFFEE

Chairman : G. NUZILLAT (Thomson CSF Orsay-F)

11h GA-AS CIRCUITS

11h -11h25 A Ga As low power normally-on 4-bit ripple carry adder  
E.H. PEREA, F. DAMAY-KAVALA, G. NUZILLAT, C. ARNODO

11h25-11h50 Ga As dynamic digital IC's for applications up to 10 GHz  
Marc ROCCHI

11h50-12h15 A broadband Ga As limit amplifier  
P.H. SAUL and J.S. URQUHART

Chairman : E. VITTOZ (CEH Neuchatel-CH)

11h DIGITAL CMOS CIRCUITS

11h -11h25 A 1.5 V CMOS 4b microcomputer needs only 100 uW  
G. SCHONLEBER, R.C. JONES, G. MEUSBURGER

11h25-11h50 NP-CMOS : A racefree - dynamic CMOS technique for pipelined logic structures  
N.F. GONCALVES, H. DE MAN

11h50-12h15 Versatile CMOS rate multiplier/variable divider  
Richard C. DEN DULK, Jan J. STUYT, Lodewijk K. REGENBOGEN, Rob C. CROES

12h15-12h40 An auto-routed C-MOS 2, 400-gate array  
D.R. PARKER, G. OSBORNE, J.W. TOMKINS

### Lunch

Chairman : B.J. HOSTICKA (Univ. Dortmund-D)

14h15 SPEECH PROCESSING CHIPS

14h15-14h40 A 3 uM NMOS high-performance LPC speech synthesizer chip  
M.C. RAHIER, P. DEFRAEYE, R. PATOVAN, F. GRASSOT, C. OBERMEIER

14h40-15h05 An integrated voice recognition system  
N.C. BUI, J.J. MONBARON, J. MICHEL

15h05-15h30 A single chip self-contained speech recognizer  
Takashi KUMURA, Takao YANO, Shigetatsu HAMAGUCHI, Norio MIYAHARA, Susumu MURAMOTO

15h30-15h55 A 32 K - 8 bit speech ROM  
Dr. Ir. R. CUPPENS, Ing. L.H.M. SEVAT

15h55-16h30 COFFEE

Chairman : H.A. KEMHADJIAN (Univ. Southampton-UK)

14h15 DIGITAL NMOS CIRCUITS

14h15-14h40 A 24-bit microprocessor for data communication systems designed on the base of a general cell library  
K.D. MUELLER-GLASER, T. CANZLER, K. KLING, H. SCHULTE

14h40-15h05 A single chip microcomputer with EEPROM  
Michel BRON, Anil GERCEKCI

15h05-15h30 Design constraints for MNOS VLSI's due to substrate current  
X. GUGGENMOS, K. HORNINGER

15h55-16h30 COFFEE

16h30-18h Panel Discussion (Chairman-organizer J. BOREL EFCIS Grenoble-F)  
FROM CUSTOM DESIGN TO SILICON FOUNDRIES :  
WHAT IS GOOD FOR EUROPEAN INDUSTRIES ?

## September 24, 1982

Chairman : J. PLEIDERER (Siemens Muchen-D)

9h - 9h45 Invited Paper  
CMOS gate arrays - status - trends - design aids  
M. ASHIDA (Fujitsu Kawasaki-J)

### 9h45 MEMORIES

9h45-10h10 A 10-ns low-power 4K static RAM with cross-coupled thyristor cells, made in a standard oxide-isolated bipolar process  
D. GRENIER, J. LOHSTROH, D. DUMONT, A. LINS-SEN, J.V.D. CROMMENACKER, F. WELTEN, A. SLOB

10h10-10h35 A very high speed CMOS/SOS look-up ROM  
T.P. HARASZTI

### 10h35-11h05 COFFEE

11h05-11h30 Bipolar 72 K bit ROM  
J.-P. NUEZ, M. GRANDGUILLOT

11h30-12h05 Designfeatures of a 5 V only 64 K-dynamic MOS RAM  
R. WEIDLICH

12h05-12h30 A 16 K CMOS static RAM  
A. DINGWALL, B. LEUNG, H. NGUYEN, S. BLACKSTONE

Chairman : W. SANSEN (KUL Leuven-B)

9h - 9h45 Invited Paper  
Digital signal processing for video applications  
P. DRAHEIM (Valvo Hamburg-D)

### 9h45 SIGNAL PROCESSING CHIPS

9h45-10h10 A compact NMOS building block for dedicated digital filter applications  
H. DE MAN, J. VAN GINDERDEUREN, N. GONCALVES, W. VAN NOIJE

10h10-10h35 A silicon compiler for VLSI signal processors  
P.B. DENYER, D. RENSHAW, N. BERGMANN

### 10h35-11h05 COFFEE

11h05-11h30 An integrated binary correlator module  
P.G. JESPERS, T.L. WATTEYNNE, M.G. WINDAL

11h30-12h05 A micropower sixth order switched capacitor leapfrog lowpass filter  
H. PINIER, F. KRUMMENACHER, V. VALENCIC

12h05-12h30 Programmable transversal filter using BBD and dynamic amplifiers  
I. VAN GELDER, G. DECLERCK

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