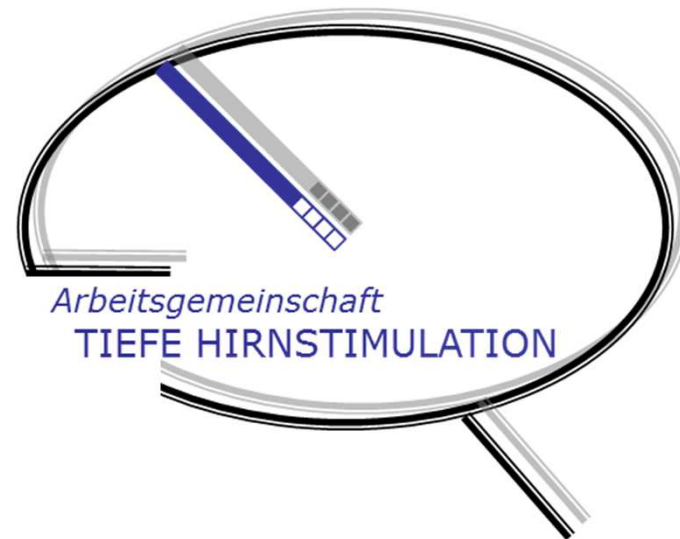


# Arbeitsgemeinschaft Tiefe Hirnstimulation: 10 years



Günther Deuschl, Jürgen Voges,  
AG THS  
(Würzburg, November 30, 2016)



The history of stereotaxy in Germany

Jürgen Voges, Magdeburg

# History of Stereotaxy in Germany

## - 1st Generation of Functional Neurosurgeons -

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Fritz Roeder, Hans Orthner  
(until 1980)

Gert Dieckmann 1980-1991

Konrad Nittner (1970-1988)  
since 1980 Chair for Stereotactic  
Neurosurgery

Peter Roettgen (1980-1988)  
Winfried Bettag

Gert Dieckmann (1969 – 1980)  
Chair and Dept. Stereotactic  
Neurosurgery

Traugott Riechert  
Fritz Munding Chair and Dept.  
Stereotactic Neurosurgery

Dieter Müller  
Section for Stereotactic  
Neurosurgery

Wilhelm Umbach  
(until 1978)

Wolf-Ernst Goldhahn  
(1963 – 1996)



# History of Stereotaxy in Germany

## - Continuity of Education in Functional Neurosurgery -

Fritz Roeder, Hans Orthner  
(before 1980)  
Gert Dieckmann 1980-1991

Joachim Krauss  
(since 2005)

Maximilian Mehdorn (1991 -  
2015) and colleagues  
(ongoing)

Jan Vesper  
(since 2007)

Dieter Müller  
Wolfgang Hamel (ongoing)

Konrad Nittner (1980-1988)

Volker Sturm (1988-2013)

Veerle Vanderwalle (since 2013)

Peter Roettgen (1980-1988)

Winfried Bettag

Gert Dieckmann (1980 -1991)

Rolf Hassler

Fritz Mundinger

Christoph Ostertag

Guido Nikkhah

Volker Coenen (since 2013)

Wilhelm Umbach

Jürgen Voges  
(since 2007)

Wolf-Ernst Goldhahn  
(1963 – 1996)

Volker Sturm (Senior  
Professor)

Cordula Matthies



# History of Stereotaxy in Germany

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1<sup>st</sup> generation stereotactic neurosurgeons: research topics according to published data

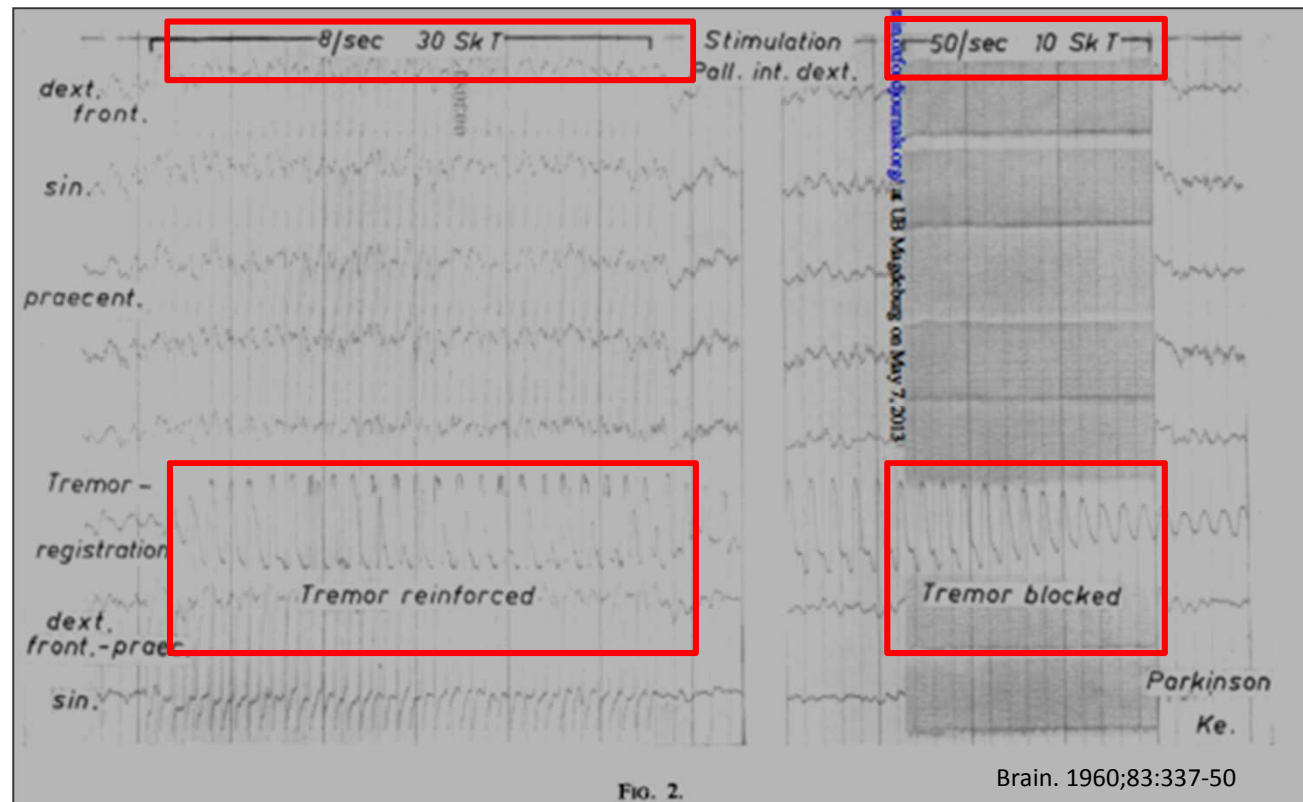
- pain, epilepsy, movement disorders
- electrophysiology, technical innovations:  
Umbach (Berlin), Nittner, Dieckmann, Mundinger
- psychiatric surgery:  
Röder/Orthner (Göttingen), Dieckmann (Homburg, Göttingen), Müller (Hamburg), Mundinger (Freiburg)

# History of Stereotaxy in Germany

Intraoperative monitoring – different effects of pallidal stimulation with 8 Hz or 50 Hz on tremor

PHYSIOLOGICAL OBSERVATIONS IN STEREOTAXIC OPERATIONS IN EXTRAPYRAMIDAL MOTOR DISTURBANCES

R. HASSLER, T. RIECHERT, F. MUNDINGER, W. UMBACH AND J. A. GANGLBERGER



# History of Stereotaxy in Germany

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## First application of DBS for dystonia in the 1970ies

Mundinger F.

New stereotactic treatment of spasmodic torticollis with a brain stimulation system (author's transl)].

[Article in German]

Med Klin. **1977** Nov 18;72(46):1982-6.

- permanent implantation of a brain stimulation system (Medtronic) in the thalamus (V.o.a./V.o.i.) and subthalamic white matter
- stimulation lasts 30--40 minutes, is determined and undertaken by the seven patients,
- control over the position and the morbidity of the head is attained simultaneously suppressing the symptoms of spasmodic torticollis

# History of Stereotaxy in Germany

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DBS for coma vigilie and pain in the 1960ies and 1980ies

Hassler R, Ore GD, Bricolo A, Dieckmann G, Dolce G.  
EEG and clinical arousal induced by bilateral long-term stimulation of pallidal systems in traumatic vigil coma. *Electroencephalogr Clin Neurophysiol.* **1969** Sep;27(7):689-90.

Dieckmann G, Witzmann A.  
Initial and long-term results of deep brain stimulation for chronic intractable pain.  
*Appl Neurophysiol.* **1982**;45(1-2):167-72.



# History of Stereotaxy in Germany

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## Pallidotomy for Parkinson's disease in the 1960ies

Orthner H, Roeder F.

[Experiences with stereotactic surgery. IV. On the long-term effect of bilateral pallidotomy in Parkinson's syndrome].

[Article in German]

Acta Neurochir (Wien). **1962** Dec 12;10:572-629.

## Computer-assisted treatment planning in the 1980ies

Seitzer D, Fröder M, Schäfer H, Dieckmann G.

[A compact table computer (data tablet digitizer) system for calculation of target points in stereotactic neurosurgery (author's transl)].

Neurochirurgia (Stuttg). **1980** Mar; 23(2):62-6.

# History of Stereotaxy in Germany

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## Research on pharmacotherapy of Parkinson's Disease performed by neurosurgeons

Umbach W, Baumann D.

[The efficacy of L-DOPA in Parkinson patients with and without stereotactic brain surgery ].

Arch Psychiatr Nervenkr. 1964 Jun 1;205:281-92.

Umbach W.

Different effects of drugs before and after stereotaxic operation.

Confin Neurol. 1966;27(1):258-61.

Umbach W, Oppel F.

[Combined therapy of parkinsonism using amantadine].

Munch Med Wochenschr. 1973 Apr 6;115(14):604-7.

# History of Stereotaxy in Germany

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## Psychosurgery

Orthner, H., E. Duhn, U. J. Jovanovic, A. König, R. Lehmann, W. Schwedder, J. v. Wehren, St. Wieser

Zur Therapie sexueller Perversionen. Heilung einer homosexuell-pädophilen Triebabweichung durch einseitigen stereotaktischen Eingriff im Tuber cinereum. Beiträge zur Sexualforschung, 46. Heft. Stuttgart: Enke Verlag 1969

Müller D, Röder F, Orthner H: Further results of stereotaxis in the human hypothalamus in sexual deviations. First use of this operation in addiction to drugs. Neurochirurgia (Stuttg). 1973 Jul; 16(4): 113–126.

Dieckmann G, Hassler R. Unilateral hypothalamotomy in sexual delinquents. Report on six cases. Confin Neurol. 1975;37(1-3):177-86.

# History of Stereotaxy in Germany

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Sexual offenders were discharged from prison if they agreed for stereotactic surgery

“...It is fact , that in Homburg 60% of the patients operated for sexual problems were prisoners, in Göttingen 75%, and in Hamburg almost 90%. Stereotactic neurosurgeons such as Müller or Dieckmann obviously assume that individuals being condemned for imprisonment because of sexual deviations or those who are afraid of being condemned could decide in a free act or will when psychiatrists offer them surgery as an alternative to prison. An absurd assumption...”

“Burned Brain” (Günter Amendt)

*konkret* October 1976

# History of Stereotaxy in Germany

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The trauma of functional neurosurgery: unfair discussion in print media attacking at first psychosurgery but later functional neurosurgery, in general.



**Operierter Schmerzpatient\***  
Blick ins eigene Hirn – live



# History of Stereotaxy in Germany

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After reunification of Germany psychosurgical interventions performed in the 1980ies on psychiatric patients in the German Democratic Republic (GDR) came into the focus of prosecutors

Reply and correction by Prof. Dr. med. W.-E. Goldhahn, Leipzig

Goldhahn W.E.  
Stereotaktische Operationen bei psychiatrischen Indikationen  
Ärzteblatt Sachsen 3 1992. S. 222 und S. 225

# History of Stereotaxy in Germany

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2nd generation stereotactic neurosurgeons - Research Topics according to published data

- Neurooncology, technical developments, stereotactic brachytherapy:  
Ostertag (Freiburg), Sturm (Heidelberg, Cologne)
- Functional neurosurgery including psychiatric surgery, radiosurgery, stereotactic brachytherapy:  
Sturm (Heidelberg, Cologne)

# History of Stereotaxy in Germany

## Selected publications

Acta Neurochirurgica 47, 235–244 (1979)

**ACTA  
NEUROCHIRURGICA**  
© by Springer-Verlag 1979

Neurosurgical Department of the Centre for Surgery <sup>1</sup>, Neuropathological Department of the Centre for Pathology <sup>2</sup>, and Institute of Physiology <sup>3</sup> of the University of Heidelberg, Federal Republic of Germany

### **Chronic Electrical Stimulation of the Thalamic Unspecific Activating System in a Patient With Coma Due to Midbrain and Upper Brain Stem Infarction\***

By

V. Sturm <sup>1</sup>, A. Kühner <sup>1</sup>, H. P. Schmitt <sup>2</sup>, H. Assmus <sup>1</sup>, and G. Stock <sup>3</sup>

### **Cognitive Functions in a Patient With Parkinson-Dementia Syndrome Undergoing Deep Brain Stimulation**

Hans-Joachim Freund, MD; Jens Kuhn, MD; Doris Lenartz, MD; Jürgen K. Mai, MD; Thomas Schnell, PhD; Joachim Klosterkoetter, MD; Volker Sturm, MD

*Arch Neurol.* 2009;66(6):781-785



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Journal of Chemical Neuroanatomy 26 (2003) 293–299

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Review

### **The nucleus accumbens: a target for deep brain stimulation in obsessive–compulsive- and anxiety-disorders**

Volker Sturm <sup>a,\*</sup>, Doris Lenartz <sup>a</sup>, Athanasios Koulousakis <sup>a</sup>, Harald Treuer <sup>a</sup>, Karl Herholz <sup>c</sup>, Johannes Christian Klein <sup>c</sup>, Joachim Klosterkötter <sup>b</sup>

frontiers in  
**HUMAN NEUROSCIENCE**

**CLINICAL CASE STUDY**  
published: 21 January 2013  
doi: 10.3389/fnhum.2012.00341



### **DBS in the basolateral amygdala improves symptoms of autism and related self-injurious behavior: a case report and hypothesis on the pathogenesis of the disorder**

Volker Sturm <sup>1\*</sup>, Oliver Fricke <sup>2</sup>, Christian P. Bährle <sup>1</sup>, Doris Lenartz <sup>1</sup>, Mohammad Maarouf <sup>1</sup>, Harald Treuer <sup>1</sup>, Jürgen K. Mai <sup>2</sup> and Gerd Lehmkuhl <sup>2</sup>