



JENNIFER Summer School 2016

at Castle Rauischholzhausen (near Giessen)

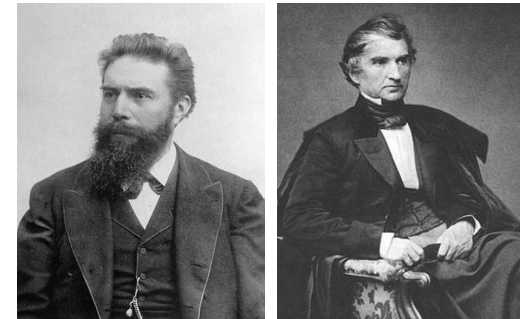
Dennis Getzkow, Thomas Geßler, Jens Sören Lange, Klemens Lautenbach
Justus-Liebig-Universität Giessen
JENNIFER General Meeting, Rom, June 10-12, 2015



- City: Gie^ßen
78.000 inhabitants
- University: Giess^en
26.000 students
- II. Physics Institute
(Subatomic Physics)
~80 staff & students
Belle II, Bes3, ATLAS
FAIR (Panda, CBM, NUSTAR)



Wilhelm Röntgen Justus von Liebig



What Giessen has to do with Clebsch-Gordan Coefficients?

Note: A square-root sign is to be understood over *every* coefficient, e.g., for $-8/15$ read $-\sqrt{8/15}$.

Notation:

J	J	...
M	M	...
m_1	m_2	
m_1	m_2	Coefficients
\vdots	\vdots	
\vdots	\vdots	

$1/2 \times 1/2$

	1			
	+1	1	0	
+1/2+1/2	1	0	0	
	+1/2	-1/2	1/2	1/2
	-1/2	+1/2	1/2	-1/2
		-1/2	-1/2	1

$$Y_1^0 = \sqrt{\frac{3}{4\pi}} \cos \theta$$

$$Y_1^1 = -\sqrt{\frac{3}{8\pi}} \sin \theta e^{i\phi}$$

$2 \times 1/2$

		5/2			
		+5/2	5/2	3/2	
+2	+1/2	1	+3/2	+3/2	
	+2	-1/2	1/5	4/5	5/2
	+1	+1/2	4/5	-1/5	+1/2
					5/2
					3/2

$$Y_2^0 = \sqrt{\frac{5}{4\pi}} \left(\frac{3}{2} \cos^2 \theta - \frac{1}{2} \right)$$

$$Y_2^1 = -\sqrt{\frac{15}{8\pi}} \sin \theta \cos \theta e^{i\phi}$$

$$Y_2^2 = \frac{1}{4} \sqrt{\frac{15}{2\pi}} \sin^2 \theta e^{2i\phi}$$

$3/2 \times 1/2$

			2			
			+2	2	1	
+3/2	+1/2	1	+1	+1		
	+3/2	-1/2	1/4	3/4	2	1
	+1/2	+1/2	3/4	-1/4	0	0
						2
						1

$1 \times 1/2$

		3/2			
		+3/2	3/2	1/2	
+1	+1/2	1	+1/2	+1/2	
	+1	-1/2	1/3	2/3	3/2
	0	+1/2	2/3	-1/3	-1/2
					1/2
					3/2

2×1

		3			
		+3	3	2	
+2	+1	1	+2	+2	
	+2	0	1/3	2/3	3
	+1	+1	2/3	-1/3	2
					1

$3/2 \times 1$

		5/2			
		+5/2	5/2	3/2	
+3/2	+1	1	+3/2	+3/2	
	+3/2	0	2/5	3/5	5/2
	+1/2	+1	3/5	-2/5	3/2
					1/2

1×1

		2			
		+2	2	1	
+1	+1	1	+1	+1	
	+1	0	1/2	1/2	2
	0	+1	1/2	-1/2	1
					0

+2	-1	1/15	1/3	3/5
+1	0	8/15	1/6	-3/10
0	+1	2/5	-1/2	1/10

3	2	1
0	0	0
+1	-1	1/5
0	0	3/5
-1	+1	1/5

+3/2	-1	1/10	2/5	1/2
+1/2	0	3/5	1/15	-1/3
-1/2	+1	3/10	-8/15	1/6

5/2	3/2	1/2
-1/2	-1/2	-1/2
+1/2	-1	3/10
-1/2	0	3/5
-3/2	+1	1/10

$$Y_\ell^{-m} = (-1)^m Y_\ell^{m*}$$

$$d_{m,0}^\ell = \sqrt{\frac{4\pi}{2\ell+1}} Y_\ell^m e^{-im\phi}$$

$$\langle j_1 j_2 m_1 m_2 | j_1 j_2 J M \rangle = (-1)^{J-j_1-j_2} \langle j_2 j_1 m_2 m_1 | j_2 j_1 J M \rangle$$



Paul Albert Gordan

* 27. April 1837 in Breslau; † 21. Dezember 1912 in Erlangen

Rudolf Friedrich Alfred Clebsch

* 19. Januar 1833 in Königsberg; † 7. November 1872 in Göttingen

working together at University Giessen in 1864

Where is Giessen ?

Giessen



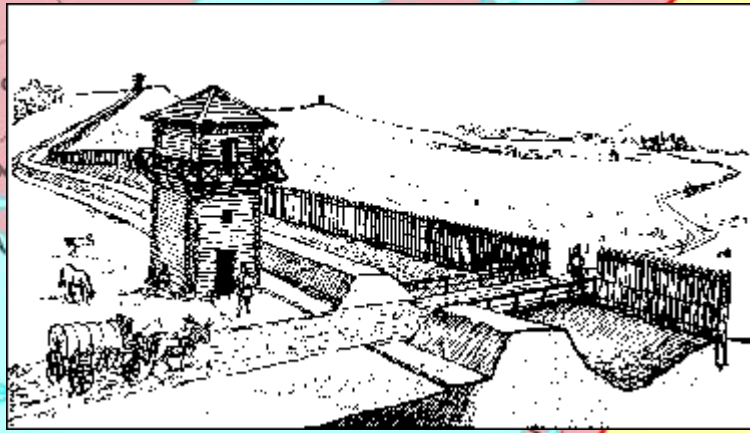
GERMANS

Germania libera

Rom

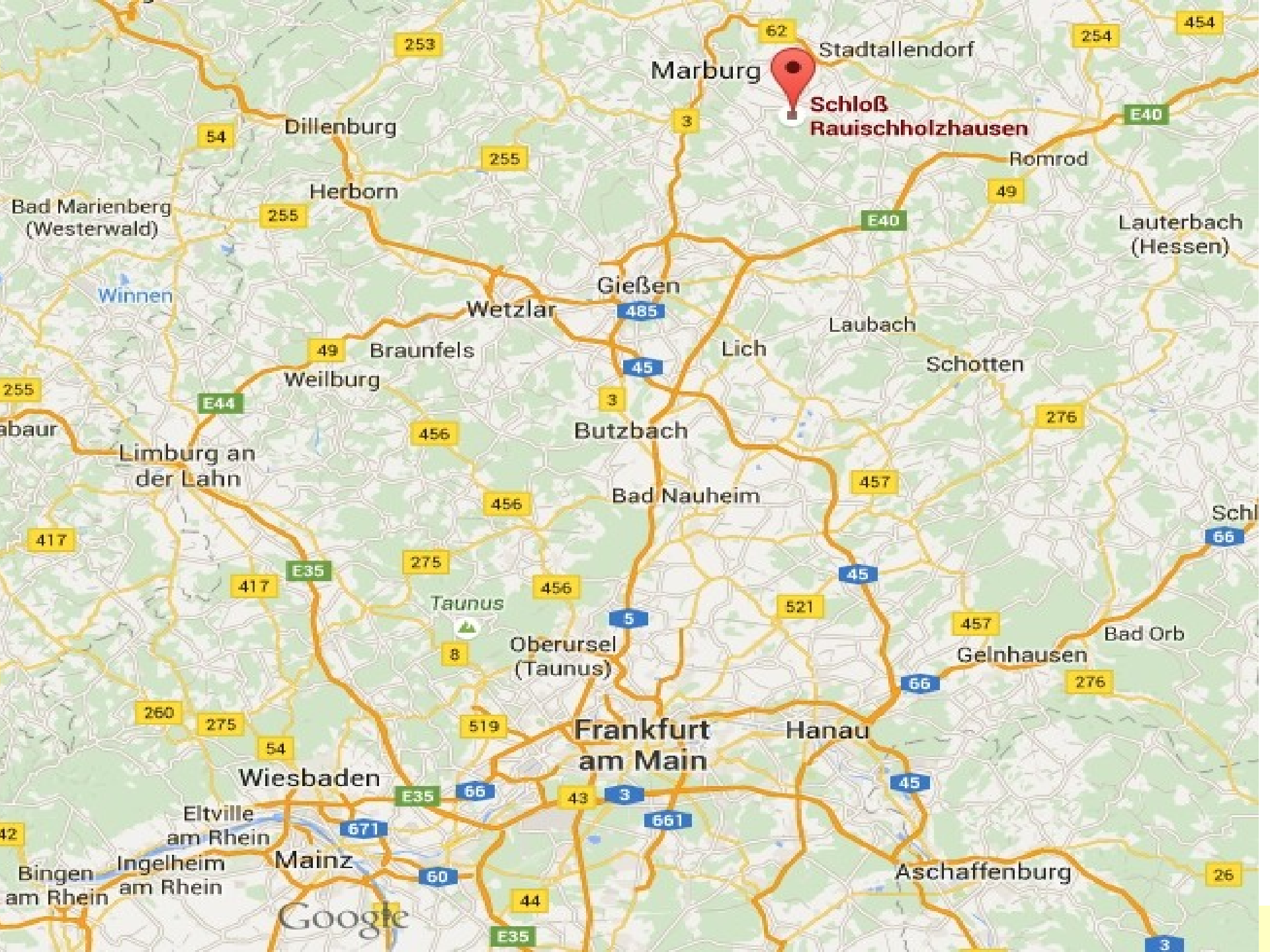
LIMES

ROMANS



- Legende:**
- Römisches Reich
 - Römisches Provinzgebiet von Obergermanien und Raetien
 - Rheinland-Pfalz
 - Obergermanisch-Raetischer Limes
 - Grenze Römisches Reich





Marburg

Stadtallendorf

Schloß Rauschholzhausen

Dillenburg

Herborn

Bad Marienberg (Westerwald)

Romrod

Lauterbach (Hessen)

Gießen

Wetzlar

Laubach

Braunfels

Lich

Schotten

Weilburg

Butzbach

Bad Nauheim

Limburg an der Lahn

Schl

Taunus

Oberursel (Taunus)

Gelnhausen

Bad Orb

Frankfurt am Main

Hanau

Wiesbaden

Eltville am Rhein

Mainz

Aschaffenburg

Bingen am Rhein
Ingelheim am Rhein

Google



Castle „Rauschholzhausen“
owned by University of Giessen

http://de.wikipedia.org/wiki/Schloss_Rauschholzhausen



Prices

92,- Euro for a student (sleeping in a double room, and showers are shared)

106,- Euro for a teacher (sleeping in a single room)

This is price per 1 person per 1 day.

It includes:

- accomodation (sleeping, towels, cleaning, etc. etc.)
- breakfast buffet
- lunch buffet
- dinner buffet
- 2 coffee breaks with cookies in the morning and cake in the afternoon.
- rent for lecture hall
- beamer, screen, audio (if needed)

Information by Antonio:

- 20 students + 5 teachers for 6 days can be financed by common fund
- Jennifer Consortium Council decided that travel costs (flight, train, taxi) should be paid by every home institution

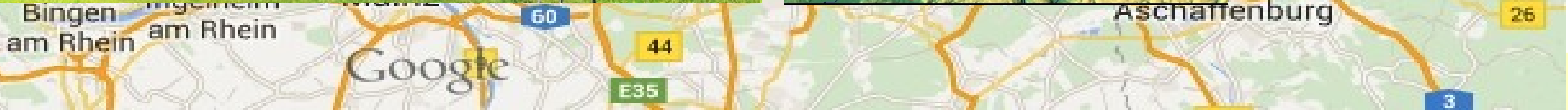
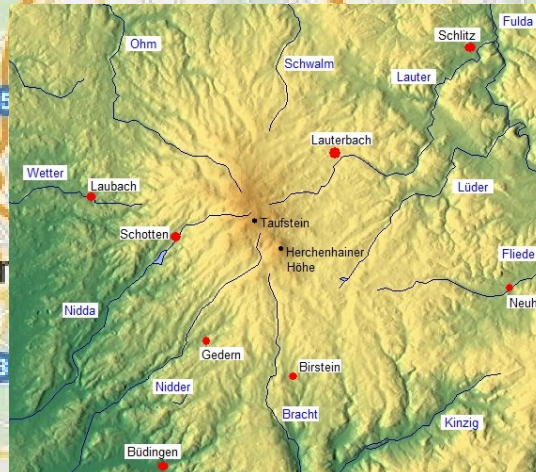


Frankfurt Airport
45 min by shared taxi (~80,- Euros)
90 min by train (~15,- Euros)



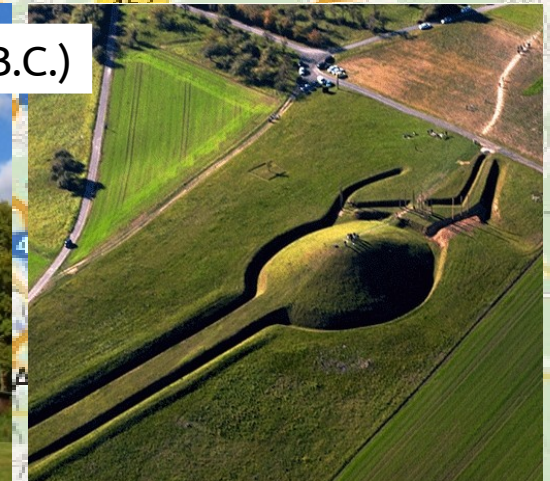


Vogelsberg
Europe largest volcano
(16 Mill. years ago)





Museum and Archeological Site of the Celtic Prince (~500 B.C.)



Conclusion and kind request for discussion

1.) The castle is popular and used by the complete university. Timely announcement of the exact date is very important. Please fix the date.

n.b. also important for potential lecturers.

2.) Shall we open the school for interested outside students?
(not financed by Jennifer)

Hoping to see you all in Giessen in summer 2016!