

Vlastní výroba supravodiče

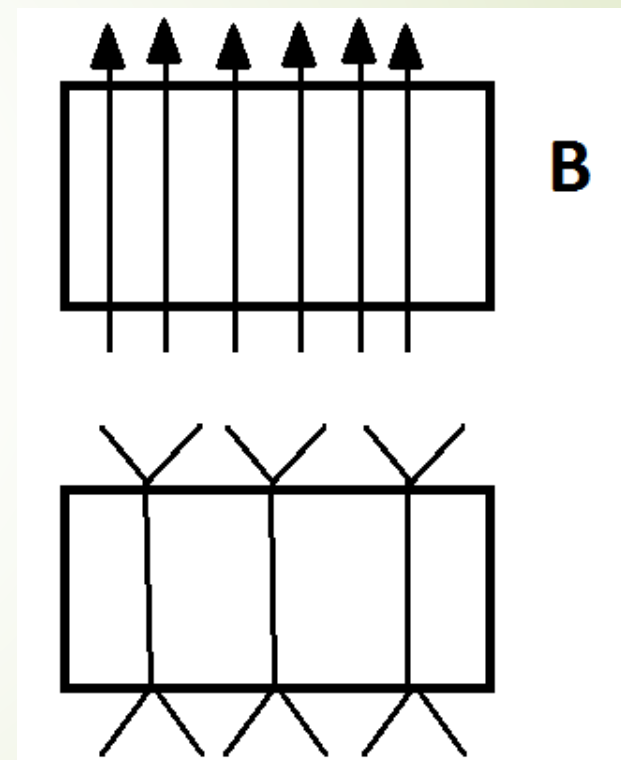
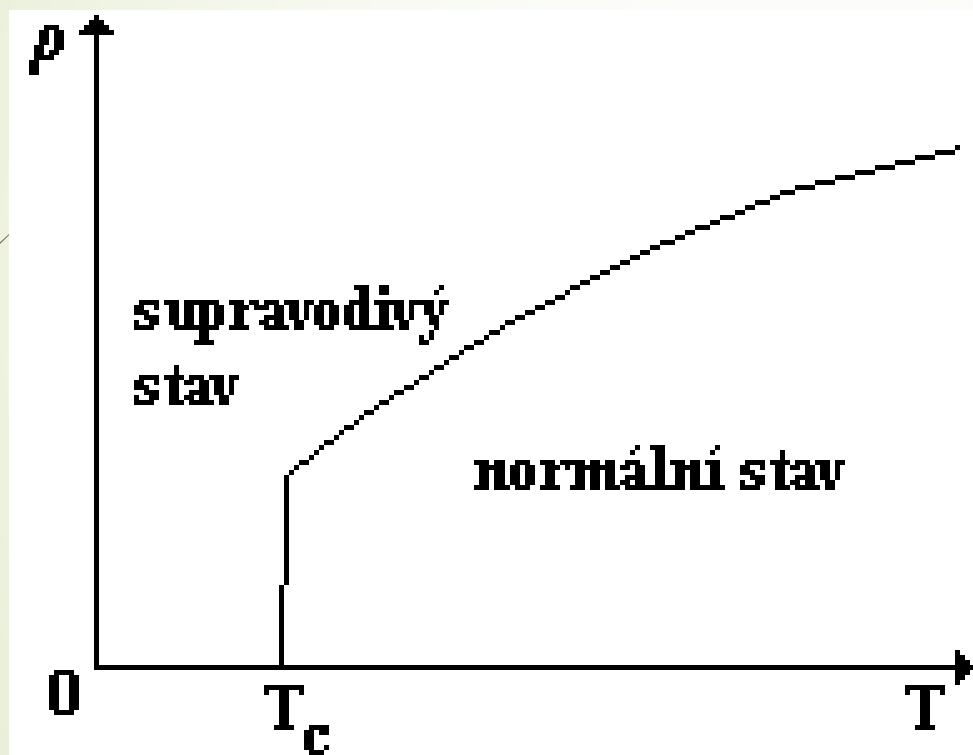
Tomáš Jakubec

Následujících 15 minut



- Co je to supravodič
- Jak funguje
- Jak si takový supravodič vyrobit

Co je to supravodič



Supravodivost. Encyklopedie fyziky [online]. © 2006 - 2015 [cit. 2015-03-17]. Dostupné z: <http://fyzika.jreichl.com/main.article/view/423-supravodivost>.

Dva typy supravodičů

První typ

KNOWN SUPERCONDUCTIVE ELEMENTS

■ BLUE = AT AMBIENT PRESSURE
■ GREEN = ONLY UNDER HIGH PRESSURE

1	IA	1	H	IIA	2	He																																	
2		3	Li	4	Be	10	Ne																																
3		11	Na	12	Mg	18	Ar																																
4		19	K	20	Ca	21	Sc	22	Ti	23	V	24	Cr	25	Mn	26	Fe	27	Co	28	Ni	29	Cu	30	Zn	31	Ga	32	Ge	33	As	34	Se	35	Br	36	Kr		
5		37	Rb	38	Sr	39	Y	40	Zr	41	Nb	42	Mo	43	Tc	44	Ru	45	Rh	46	Pd	47	Ag	48	Cd	49	In	50	Sn	51	Sb	52	Te	53	I	54	Xe		
6		55	Cs	56	Ba	57	*La	72	Hf	73	Ta	74	W	75	Re	76	Os	77	Ir	78	Pt	79	Au	80	Hg	81	Tl	82	Pb	83	Bi	84	Po	85	At	86	Rn		
7		87	Fr	88	Ra	89	+Ac	104	Rf	105	Ha	106	107	108	109	110	111	112																					

III A I V A Y A V I A V I I A

III B I V B Y B V I B V I I B

— VII — I B I I B

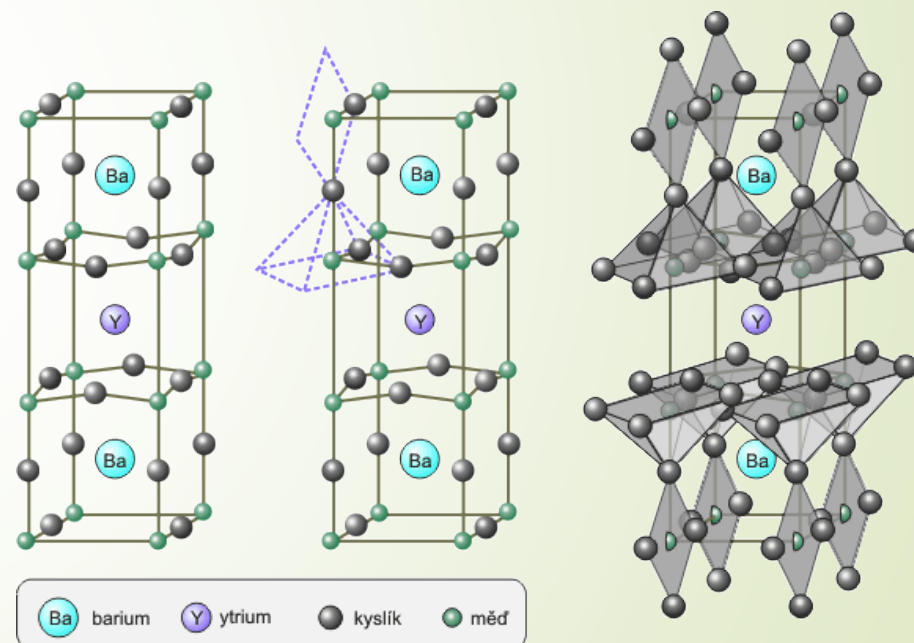
58 59 60 61 62 63 64 65 66 67 68 69 70 71
* Lanthanide Series
Ce Pr Nd Pm Sm Eu Gd Tb Dy Ho Er Tm Yb Lu

90 91 92 93 94 95 96 97 98 99 100 101 102 103
+ Actinide Series
Th Pa U Np Pu Am Cm Bk Cf Es Fm Md No Lr

SUPERCONDUCTORS.ORG

Type 1 Superconductors: And a Periodic Chart Comparison. Superconductors [online]. [cit. 2015-03-17]. Dostupné z: <http://www.superconductors.org/percht2.gif>.

Druhý typ

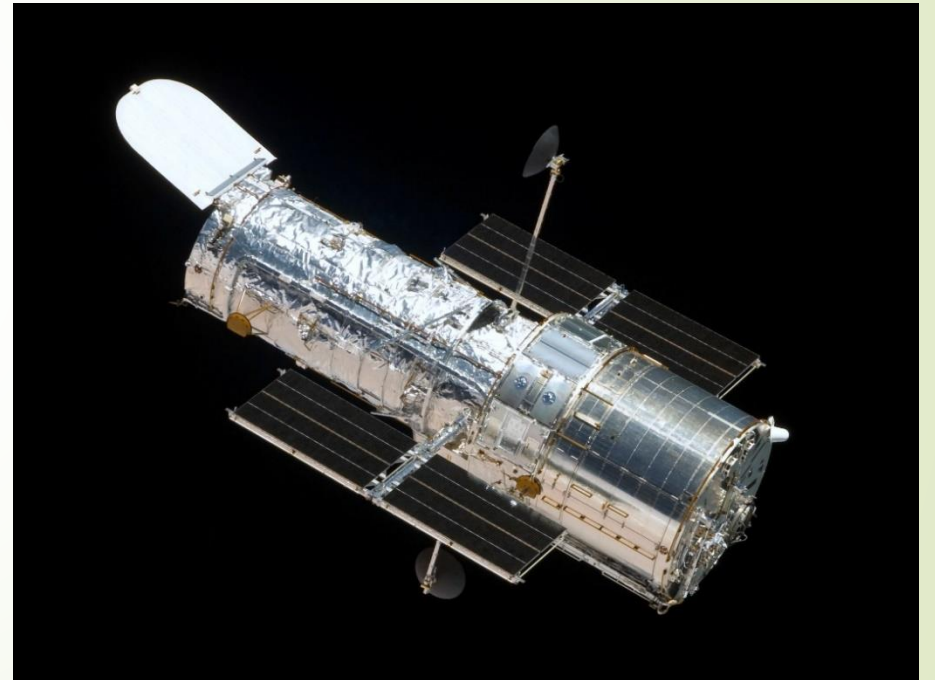


Petr Kulhánek: Vysokoteplotní supravodivost. Aldebaran: Bulletin [online]. 6.9.2004 [cit. 2015-03-17]. Dostupné z: http://www.aldebaran.cz/bulletin/2004_36_hts.html.

Využití supravodičů

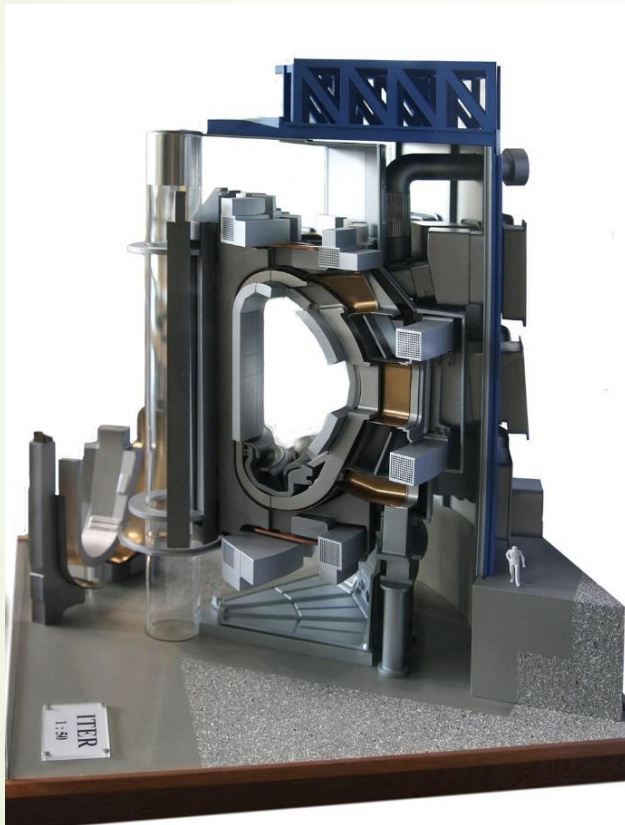


View of the CMS Detector before closure. Flickr [online]. 2011 [cit. 2015-04-08]. Dostupné z: <https://www.flickr.com/photos/arselectronica/sets/72157626506767005/detail/?page=4>.

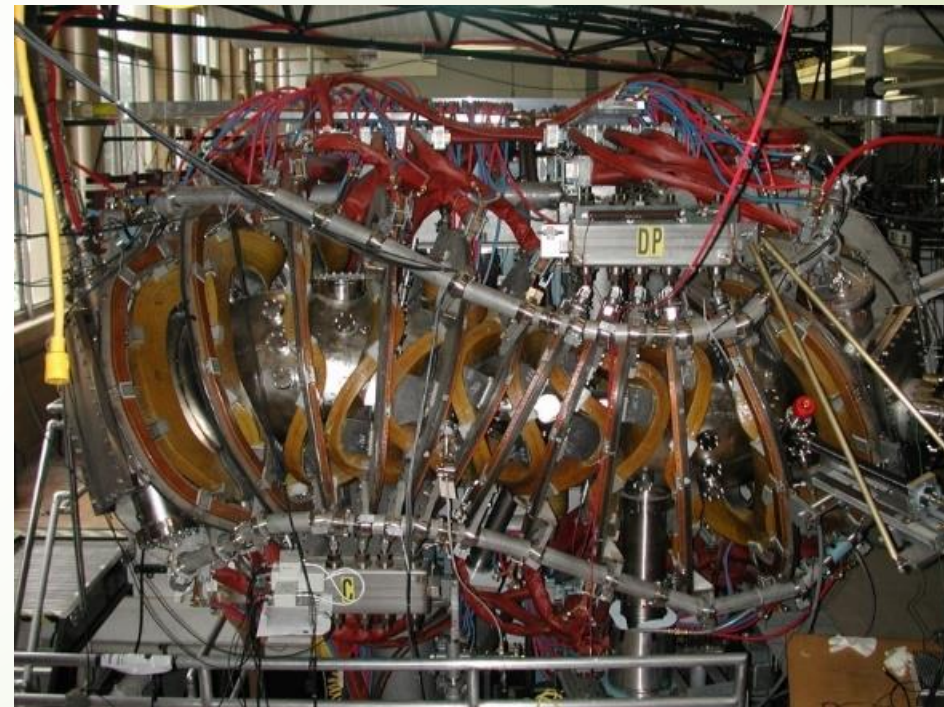


Hubble Space Telescope. 2015. Wikipedia, The Free Encyclopedia [online]. [cit. 2015-05-10]. Dostupné z: http://en.wikipedia.org/wiki/Hubble_Space_Telescope.

Využití supravodičů



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Využití supravodičů



IFW-Dresden Superconducting Maglev Train Models. YouTube [online]. 2007 [cit. 2015-04-08]. Dostupné z: https://www.youtube.com/watch?v=TeS_U9qFg7Y.

Suroviny

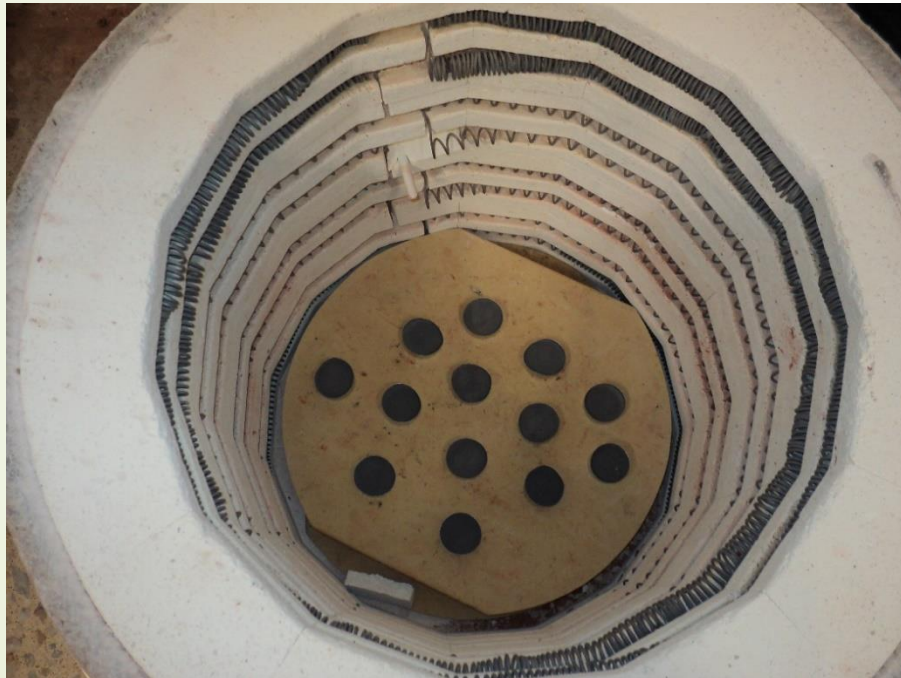


- Oxid yttritý 11.29 g
- Oxid měďnatý 23.86 g
- Uhlíčan barnatý 39.47 g

Výroba

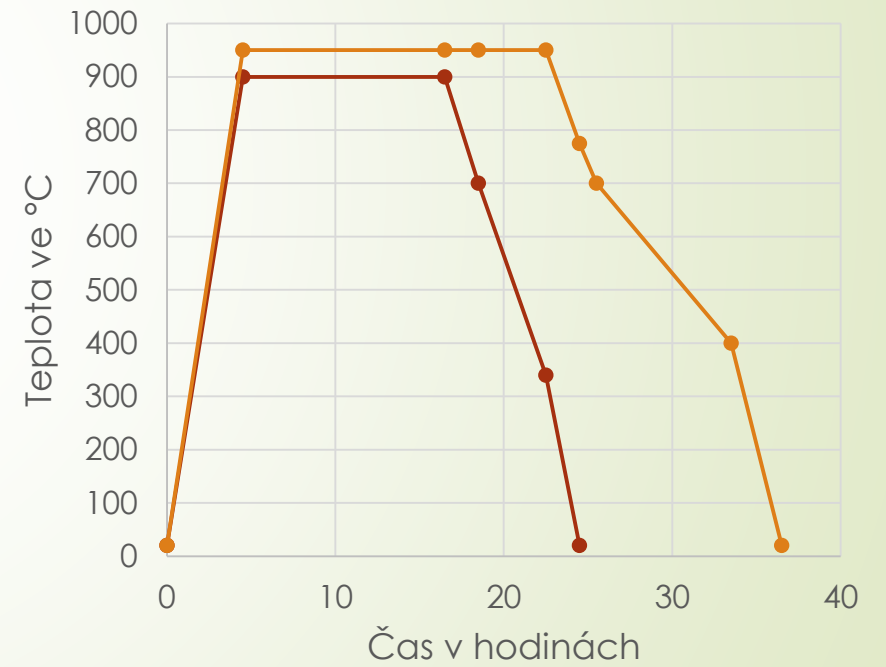


Výroba



Tomáš Jakubec

Závislost teploty na čase



Výroba



➤ Pojdte se podívat na experiment



Shrnutí

- Význam supravodičů v technice budoucnosti
- Důležité poznatky ve výrobě
- Jak dosáhnout co nejlepšího výsledku



Děkuji Vám za pozornost

Zdroje

- ▶ Supravodivost. Encyklopedie fyziky [online]. © 2006 - 2015 [cit. 2015-03-17]. Dostupné z: <http://fyzika.jreichl.com/main.article/view/423-supravodivost>.
- ▶ Type 1 Superconductors: And a Periodic Chart Comparison. Superconductors [online]. [cit. 2015-03-17]. Dostupné z: <http://www.superconductors.org/percht2.gif>.
- ▶ Petr Kulhánek: Vysokoteplotní supravodivost. Aldebaran: Bulletin [online]. 6.9.2004 [cit. 2015-03-17]. Dostupné z: http://www.aldebaran.cz/bulletin/2004_36_hts.html.
- ▶ View of the CMS Detector before closure. Flickr [online]. 2011 [cit. 2015-04-08]. Dostupné z: <https://www.flickr.com/photos/arselectronica/sets/72157626506767005/detail/?page=4>.
- ▶ Hubble Space Telescope. 2015. Wikipedia, The Free Encyclopedia [online]. [cit. 2015-05-10]. Dostupné z: http://en.wikipedia.org/wiki/Hubble_Space_Telescope.

Zdroje

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- ▶ IFW-Dresden Superconducting Maglev Train Models. YouTube [online]. 2007 [cit. 2015-04-08]. Dostupné z: https://www.youtube.com/watch?v=TeS_U9qFg7Y.