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<p>(21) International Application Number: PCT/US91/05312 (22) International Filing Date: 26 July 1991 (26.07.91) (30) Priority data: 558,733 26 July 1990 (26.07.90) US (71) Applicant: MASSACHUSETTS INSTITUTE OF TECHNOLOGY [US/US]; 77 Massachusetts Avenue, Cambridge, MA 02139 (US). (72) Inventors: TANAKA, Toyochi ; 22 Lowell Road, Wellesley, MA 02181 (US). KOKUFUTA, Etsuo ; 706-101, 3-chome, Namiki (JP). ZHANG, Yong-Quing ; 908 Westgate, Cambridge, MA 02139 (US). SUZUKI, Atsushi ; 22-203, Hino 6-11, Khonan-ku, Yokohama, Kanagawa (JP). MAMADA, Akira ; Kao-Research Laboratories, 1334 Minato, Wakayama 640 (JP). HIROKAWA, Yoshitsugu ; 2-26-3-101, Kajiwara, Kamakura 248 (JP). TOKITA, Masayuki ; 898 Massachusetts Avenue No. 45, Arlington, MA 02174 (US).</p>		<p>(74) Agents: BROOK, David, E. et al.; Hamilton, Brook, Smith & Reynolds, Two Militia Drive, Lexington, MA 02173 (US). (81) Designated States: AT (European patent), BE (European patent), CA, CH (European patent), DE (European patent), DK (European patent), ES (European patent), FR (European patent), GB (European patent), GR (European patent), IT (European patent), JP, LU (European patent), NL (European patent), SE (European patent). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 19 March 1992 (19.03.92)</p>
<p>(54) Title: GEL PHASE TRANSITION CONTROLLED BY INTERACTION WITH A STIMULUS</p>		
<p>(57) Abstract</p> <p>A phase-transition gel and a method of forming a phase-transition gel which undergoes a significant discontinuous volume change at a desired phase-transition condition in response to a stimulus is disclosed. The phase transition gel includes a liquid medium gelled with a polymer network which has a phase transition condition different from that desired and a phase-transition-modifying agent sufficient to cause, in response to the stimulus, the discontinuous volume change of the gel at the desired phase-transition condition.</p>		

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⁺ It is not yet known for which States of the former Soviet Union any designation of the Soviet Union has effect.

INTERNATIONAL SEARCH REPORT

PCT/US 91/05312

International Application No

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int.Cl. 5 C08F8/00; C08J3/03; G01N27/26		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.Cl. 5	C08F ; C08J ; G01N ; C12N	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	US,A,4 732 930 (TANAKA ET AL) 22 March 1988 cited in the application	1,2,4, 6-9,13, 14
A	see the whole document ---	1-14
A	US,A,4 174 952 (CANNELL ET AL.) 20 November 1979 see claims ---	1
A	US,A,4 172 066 (ZWEIGLE ET AL.) 23 October 1979 see claims; example 1 ---	1
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IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
10 FEBRUARY 1992	24. 02. 92	
International Searching Authority	Signature of Authorized Officer	
EUROPEAN PATENT OFFICE	KAUMANN E. K. -H. <i>Edgar Kaumann</i>	

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO. US 9105312
SA 50072**

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A-4732930	22-03-88	None	
US-A-4174952	20-11-79	None	
US-A-4172066	23-10-79	US-A- 4059552	22-11-77

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82