

October 24, 2020

Dear Govindjee and Rajni Ji:

Please accept my heartfelt greetings on your 63<sup>rd</sup> wedding anniversary and on Govindjee's 88<sup>th</sup> birthday. I am thankful to you Govindjee for your prompt responses to my letters—sometimes even past midnight for you. To me, you two are the *whole science*. As I read more and more about you, I am amazed to see how one person could go so far and so deep in his passion for Science. When I see your pictures in the papers published on you, I notice that you have been frequently visiting India. This time, in 2020, the COVID-19 pandemic created gaps in your visits to various places in India.

I sincerely hope that we would see you with Rajni Ji here, in the future, in India. with your cheerful smile. I have read articles and seen published photographs which tell that many researchers around the World had good luck in meeting you in person. -----  
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Photosynthesis is one of most complex of biological system on which all the living world depends on. In my own personal judgment. you are the real *Bharat Ratna\**, who has given his life to this subject and has brought into light all the great contributors in this field.

I attach here a birthday card\* for you, where I have included some pictures of moments which I took from different published papers. I hope you will like it, especially because I have included your favorite Z-scheme of photosynthesis -----  
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*You are one of enlightening Buddhas of Plant Biology.*

*Stay healthy and cheerful; we all are here like your children and friends. As I have begun to know you, I strongly feel that someday, a webinar will be organized where you will give young students, researchers and others a chance to meet you and ask questions.*

*I pray for a long, healthy and cheerful life for both you and Rajni Ji.  
With my sincere regards and love,*

*Meena Barupal*

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*\*[https://en.wikipedia.org/wiki/Bharat\\_Ratna](https://en.wikipedia.org/wiki/Bharat_Ratna)*

*# Page 1 of the card shows a picture of the “Great Wall of China”; Saber Hamdani, one of the coworkers of Xin-Guang Zhu and Govindjee, wrote: “China has the Great Wall, but Photosynthesis has the Great Govindjee.” On page 2 of the card, we have Govindjee’s love “The Z-Scheme of Photosynthesis” (one can download a poster of this scheme from his web page: <http://www.life.illinois.edu/govindjee/>); further, Govindjee is shown here wearing his “BEIJU<sup>a</sup>” (88<sup>th</sup> birthday) shirt. Pages 3 and 4 show him alone; with Rajni Ji; and with many friends around the World.*

*<sup>a</sup>For the meaning and importance of “Beiju”, see the following comments by Arthur Nononmura, and more.*

## From Arthur Nonomura

**Allow me to point you to another numerological chronological milestone, 88. In Japan, attainment of certain ages is so important that some are given special names, thus, 88 years old is called Beiju.**

**Let me explain. Eight is a lucky number and 88 is double lucky. When 88 is written in Kanji, it stacks 8 on top of 10 and on top of 8 ((8 X 10) + 8 = 88). See the figure in red (see the next page), right, wherein the + is ten. Those characters combined look like the kanji character for rice, see the figure on the next page for rice in black to the left of red.**

**Thus, you (Govindjee) are said to be in your “age of rice” or Beiju.**

**A thousand years ago, rare was the human who reached Beiju.**

**Those few who did were honored as we are honoring you.**

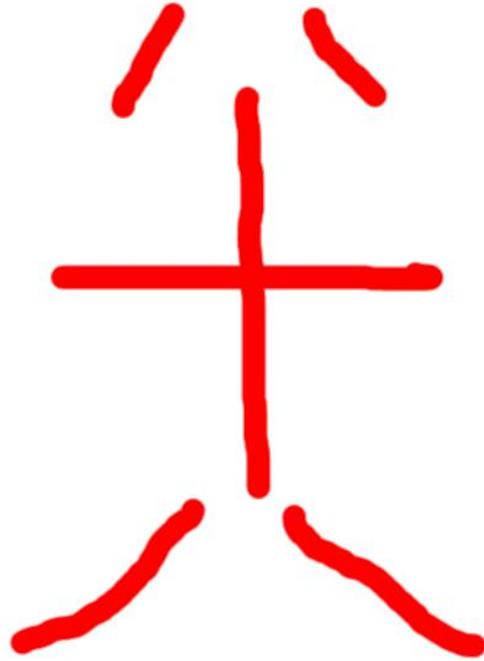
**Respectfully,**

*Arthur Nonomura*

米寿

88 歳

米



### Addendum

**International Astronomical Union (IU) recognizes 88 constellations.** Eugène Delporte originally listed the 88 “modern” constellations on behalf of the IAU Commission 3 (Astronomical Notations), in *Délimitation scientifique des constellations*. (Delporte, 1930)  
Source: <https://www.iau.org/public/themes/constellations/>

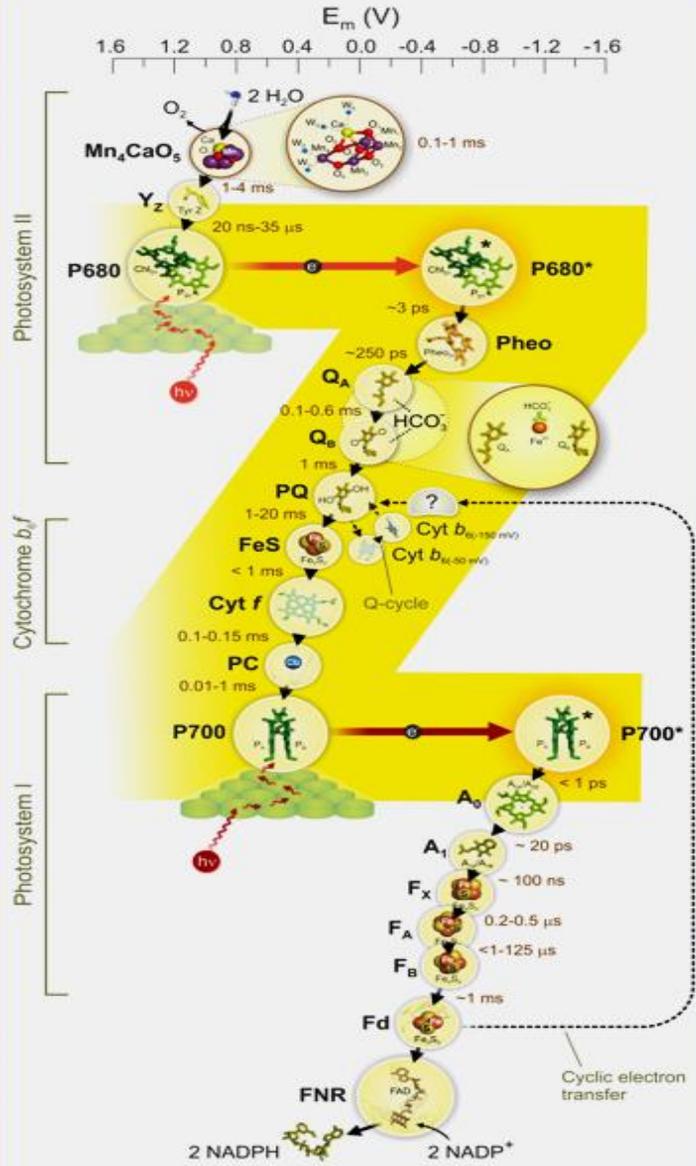
“The term *constellation* to mean one of 88 sectors into which we divide the sky, much as the United States is divided into 50 states. The modern boundaries between the constellations are imaginary lines in the sky running north–south and east–west, so that each point in the sky falls in a specific constellation, although, like the states, not all constellations are the same size.” Source: <https://courses.lumenlearning.com/astronomy/chapter/the-sky-above/>



DR.  
GOVINDJEE

*And journey of Z scheme*

# Z-Scheme of Electron Transport in Photosynthesis



# Dr. Govindjee

Our  
Mr. Photosynthesis



Wish You

Happy 88th  
Birthday





### 1 UNDERSTANDING PHOTOSYNTHESIS

ILLINOIS WAS HOME TO TWO PIONEERS OF PHOTOSYNTHESIS RESEARCH. ROBERT EYERSON AND EUGENE RABINOWITZ MADE FUNDAMENTAL DISCOVERIES THAT REVEALED THE MECHANISMS FOR CONVERTING LIGHT TO CHEMICAL ENERGY IN PHOTOSYNTHESIS. RABINOWITZ APPLIED THIS PROCESS TO UNDERSTANDING THE BIOLOGICAL AND PHYSICAL SCIENCES, THEY HELPED FORGE A LINK BETWEEN THE BIOLOGICAL AND PHYSICAL SCIENCES, THEY HELPED ESTABLISH THE DISCIPLINE OF BIOPHYSICS.

UNIVERSITY OF ILLINOIS



