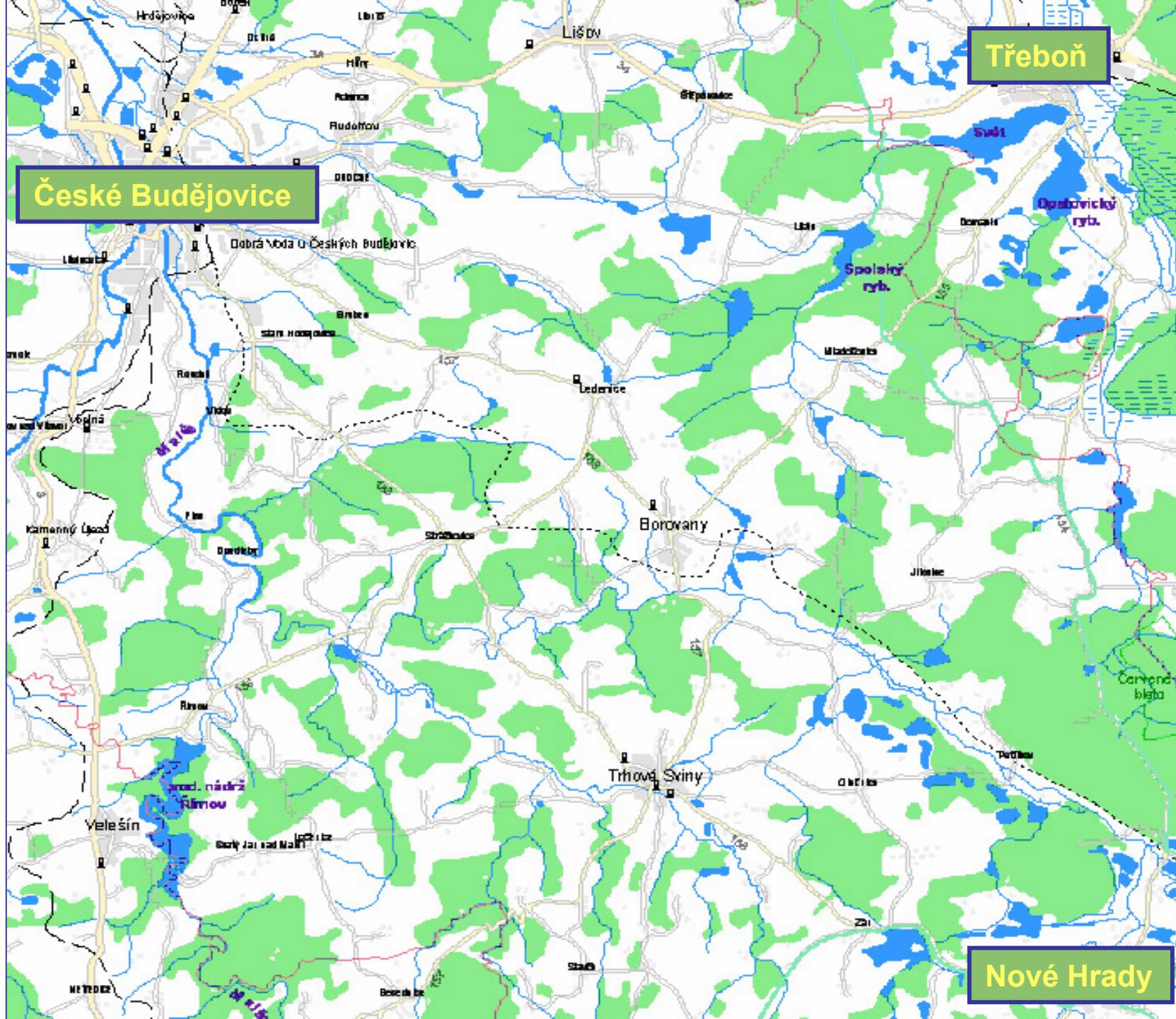


Výjezdní zasedání
Učené společnosti
České republiky
v Třeboni a
v Nových Hradech
Úvod

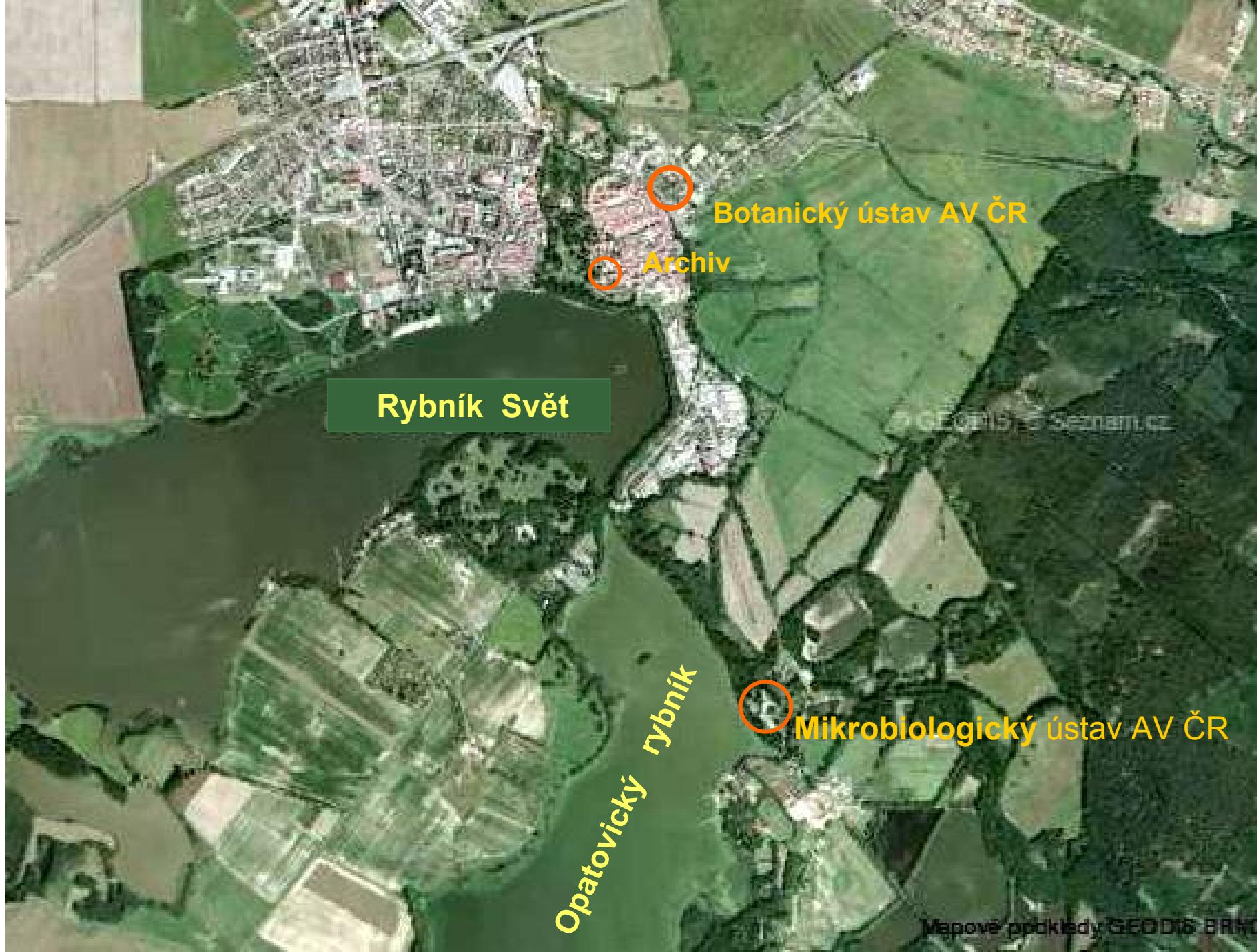


Třeboň

České Budějovice

Nové Hrady





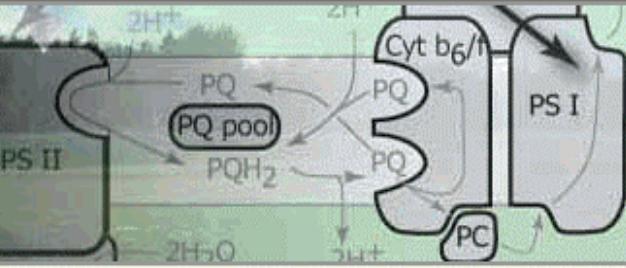








SYSTEMS BIOLOGY OF PHOTOSYNTHESIS IN DYNAMIC LIGHT ENVIRONMENT



Introduction

Project menu

Experiment menu

Links

Forum

Support

SIMULATE

PROTOCOL:

Qa Reoxidation

Load/New

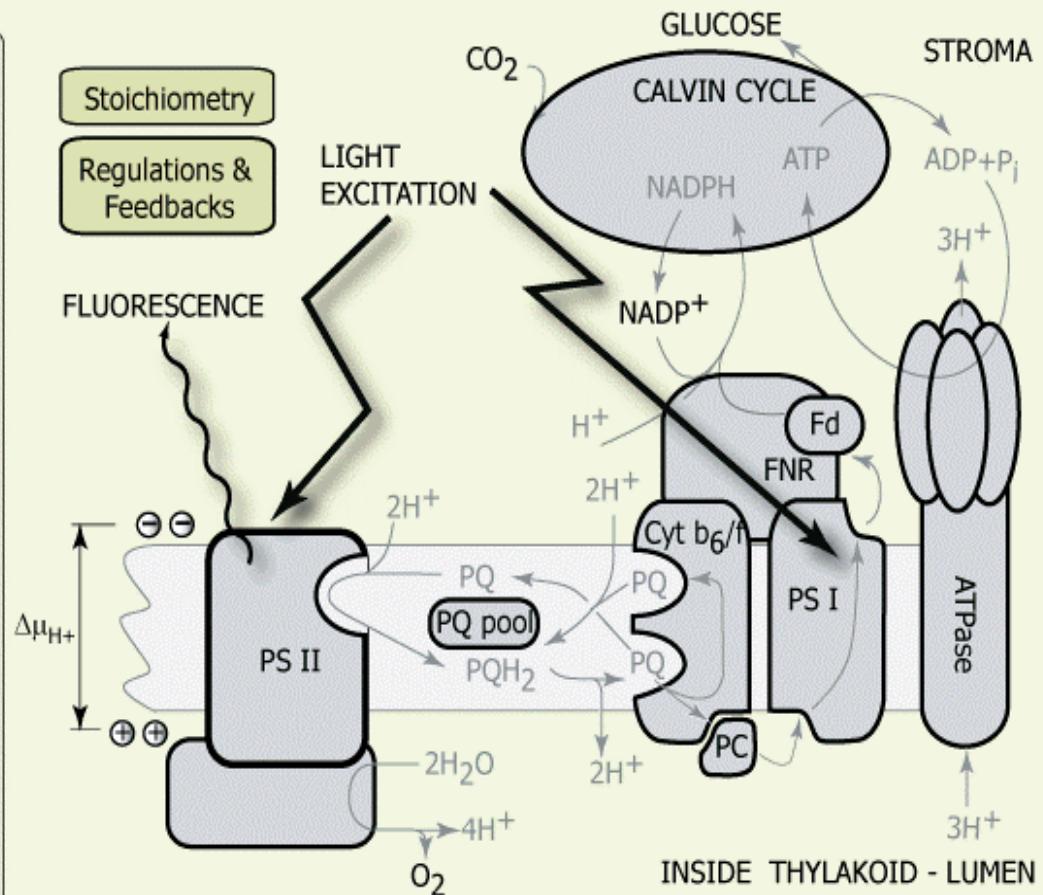
Info

The screenshot displays the Project Menu with four project slots listed:

- PS II**: Status: Available (green outline). Options: View (V), Help (?), and Open (A.Holzwarth).
- PS I**: Status: Available (green outline). Options: View (V), Help (?), and Open (D.Lazar).
- PS I**: Status: Available (green outline). Options: View (V), Help (?), and Open (W.Vredenberg).
- PS I**: Status: Available (green outline). Options: View (V), Help (?), and Open (open project slot).

Below the slots, there are two additional items:

- chloroplast**: Status: Available (green outline). Options: View (V), Help (?), and Open (L.Nedbal).
- cell**: Status: Available (green outline). Options: View (V), Help (?), and Open (open project slot).





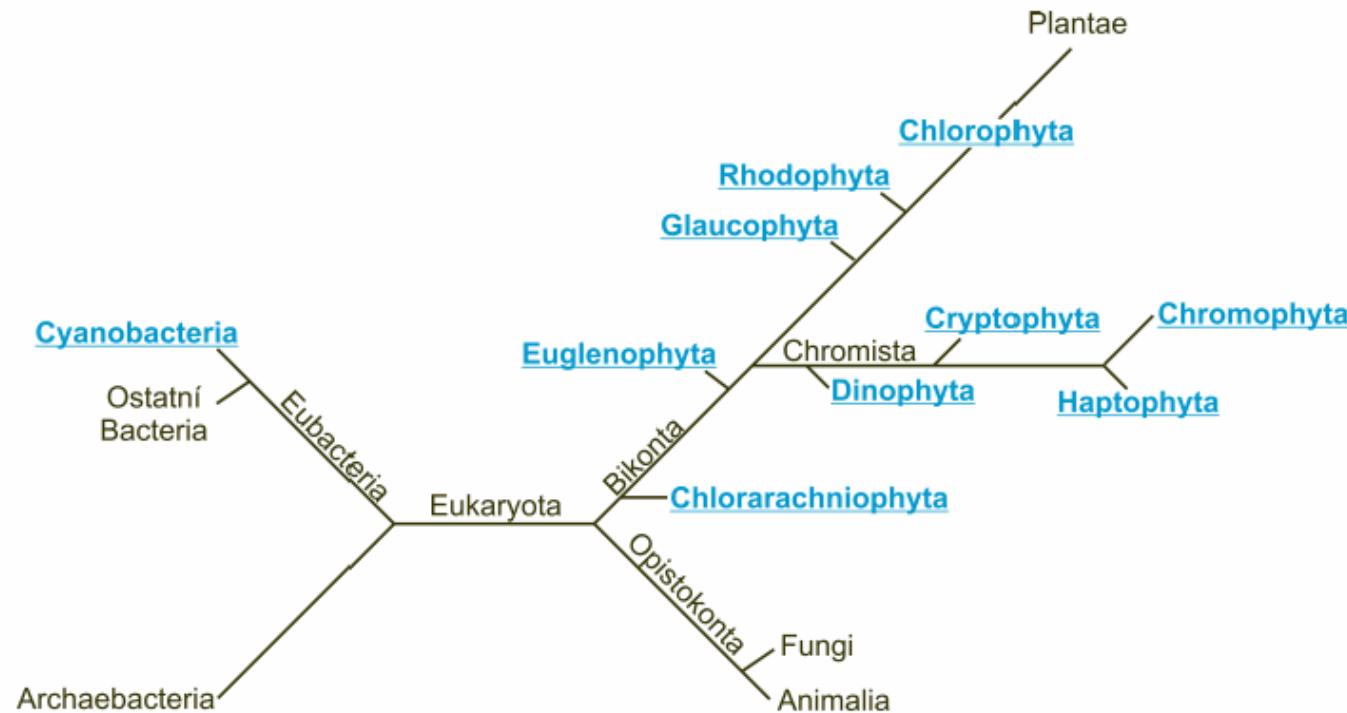
Hlavní nabídka

- Sinice a řasy pro všechny
- Sinice a řasy pro pokročilé
- Sinice a řasy pro profesionály
- Fykologie na Přírodovědecké fakultě JU
- Galerie sinic a řas
- Odkazy
- Externí spolupracovníci



Sinice a řasy pro pokročilé

Tato sekce je určena zájemcům o bližší studium sinic a řas. Obsahuje studijní materiály o jednotlivých skupinách a popisy některých významných rodů a druhů. Nejkrásnější na webových stránkách je to, že se mohou neustále přepracovávat. Což budeme rozhodně dělat. Ale tímto Vás, milí zájemci o sinice a řasy, vyzýváme a prosíme – objevíte-li na našich stránkách nějakou chybu, nebo najdete-li článek, který se Vám zdá podstatný a my jsme ho nezapracovali a nebo máte-li v šuplíku nějaké hezké fotografie atd., ozvěte se nám. Uděláte nám radost. My jsme Vám tímto webem taky udělali radost, ne ?



Sinice a řasy.cz - GALERIE

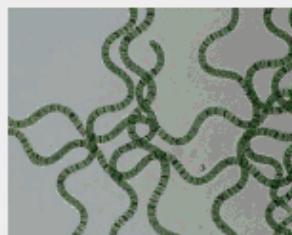
stránky věnované studiu sinic a řas
součást webu [Sinice a řasy](#)

Galerie

Toto je hlavní stránka této Galerie.

Date: 04/30/2007

Size: 8 items (2714 items total)



Album: Cyanobacteria

Date: 05/02/2007

Size: 5 items (389 items total)

Views: 809

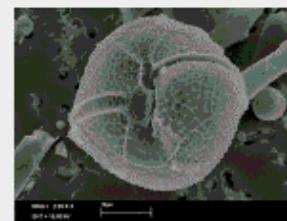


Album: Cryptophyta

Date: 05/02/2007

Size: 1 item (6 items total)

Views: 263



Album: Dinophyta

Date: 05/02/2007

Size: 19 items (84 items total)

Views: 393



Album: Chromophyta

Date: 05/02/2007

Size: 6 items (548 items total)

Views: 520



Album: Euglenophyta

Date: 05/02/2007

Size: 5 items (68 items total)

Views: 333

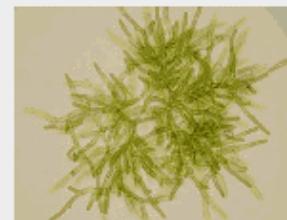


Album: Rhodophyta

Date: 05/02/2007

Size: 14 items (76 items total)

Views: 341



Album: Chlorophyta

Date: 05/02/2007

Size: 6 items (754 items total)

Views: 685



Album: Akce

Date: 05/02/2007

Size: 12 items (781 items total)

Views: 299

PREDICTION AND MEASUREMENT OF PHOTOSYNTHETIC PRODUCTIVITY

Proceedings of the IBP/PP Technical Meeting, Třeboň, 14–21 September 1969

Organizing Committee

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S. Prát (Vice-chairman)
I. Šetlík (Scientific Secretary)
B. Prokeš (Executive Secretary)
J. Květ (IBP Officer)
M. C. Anderson
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E. R. Lemon
M. Monsi
J. L. Monteith
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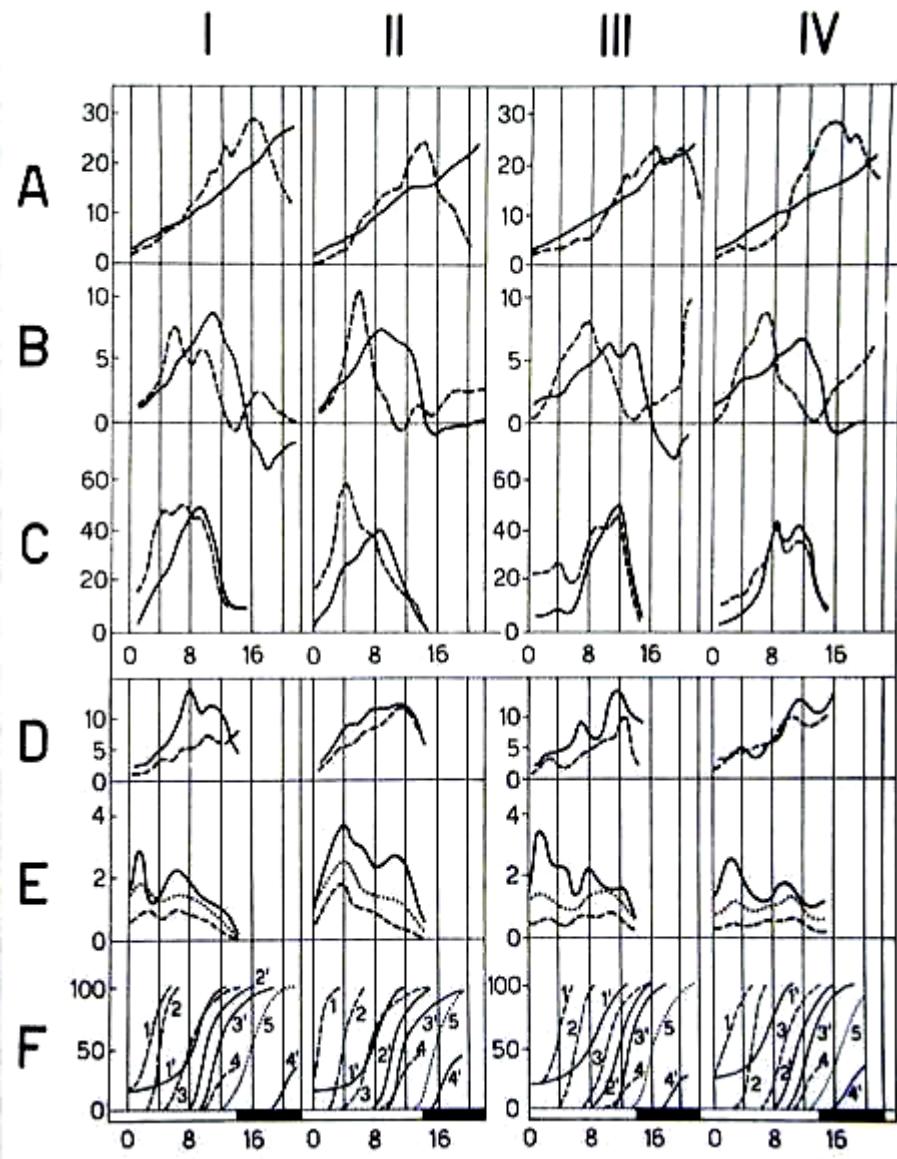
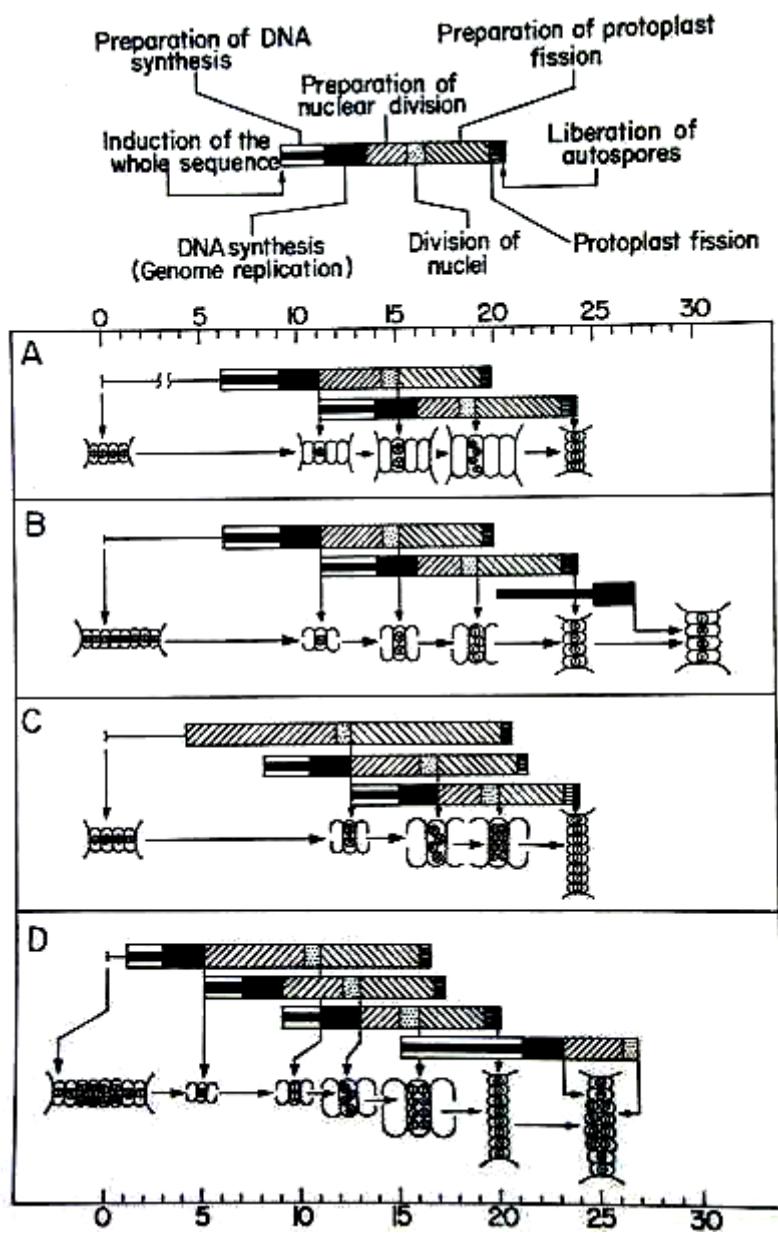


The coupling of synthetic and reproduction processes in *Scenedesmus quadricauda*

By IVAN ŠETLÍK, EVA BERKOVÁ, JIŘÍ DOUCHA, ŠTĚPÁN KUBÍN,
JITKA VENDLOVÁ and VILÉM ZACHLEDER

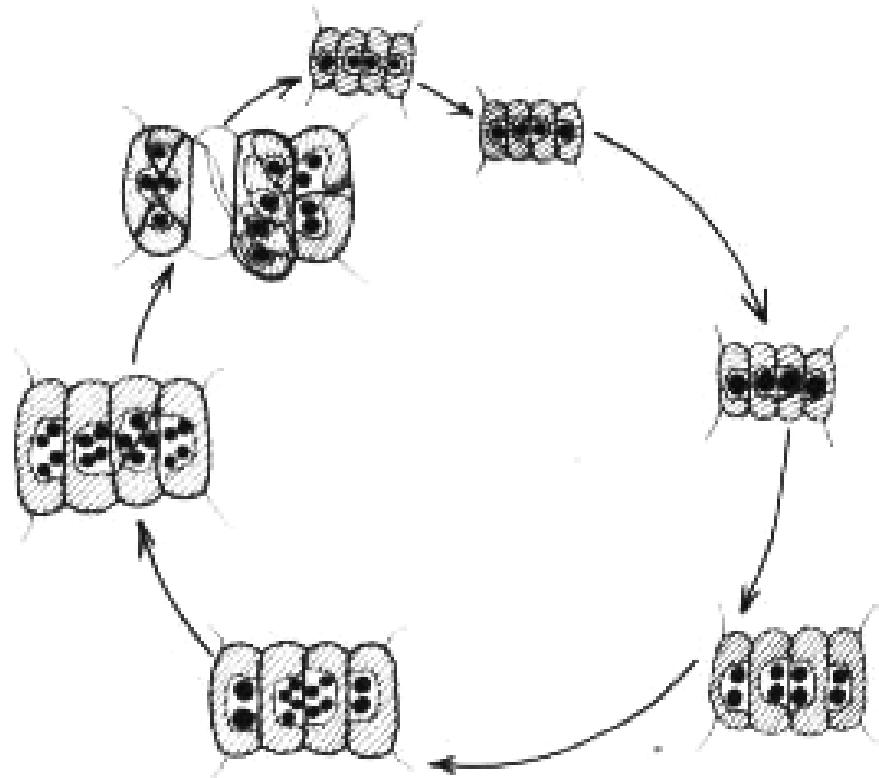
Laboratory of Algology, Institute of Microbiology
Czechoslovak Academy of Sciences, Třeboň, Czechoslovakia

With 17 figures in the text

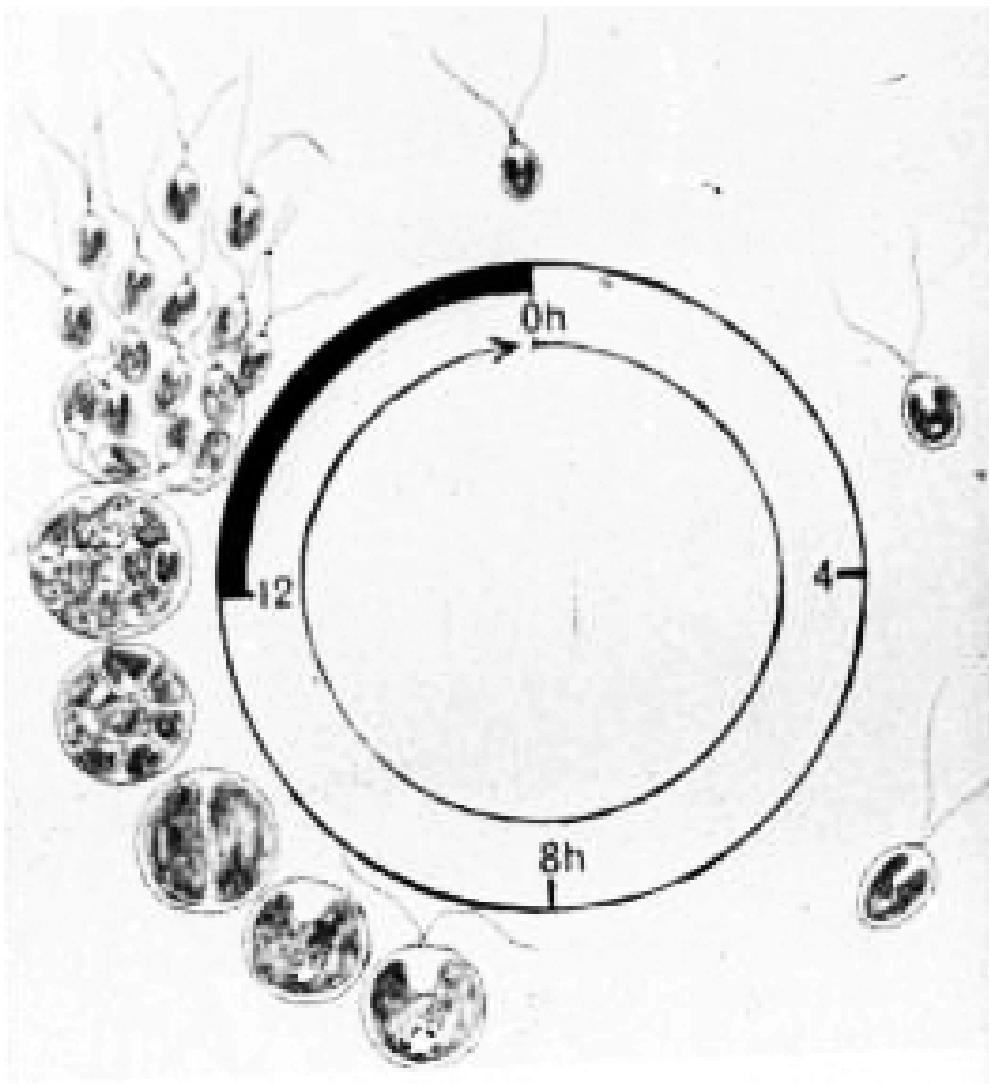


Buněčný cyklus *Scenedesmus*

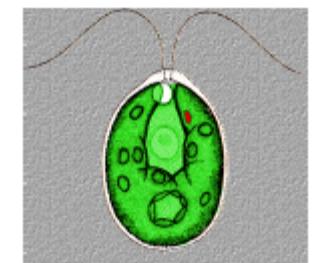
Buňky, které vzniknou rozdelením jedné mateřské buňky, zůstávají spojené a tvoří coenobium.



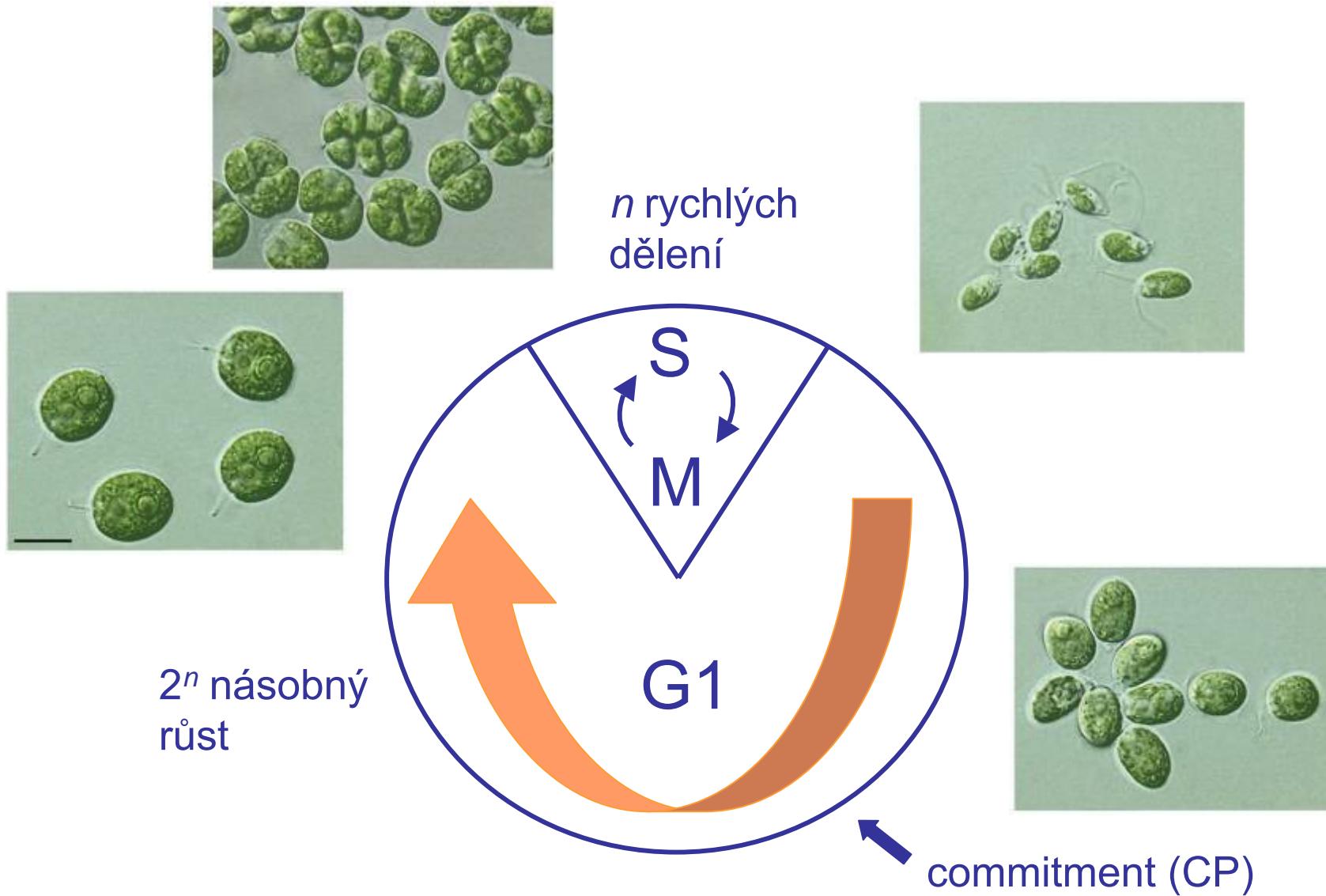
Buněčný cyklus *Chlamydomonas*



Násobné dělení
(multiple fission):
během jednoho
buněčného cyklu
vzniká 2^n
dceřiných buněk.



Chlamy se dělí násobným dělením



CRC

THE MICROBIAL CELL CYCLE

Paul Nurse
Eva Streiblová

CRC PRESS

Chapter 16

THE MULTIPLE FISSION CELL REPRODUCTIVE PATTERNS IN ALGAE

Ivan Šetlík and Vilém Zachleder

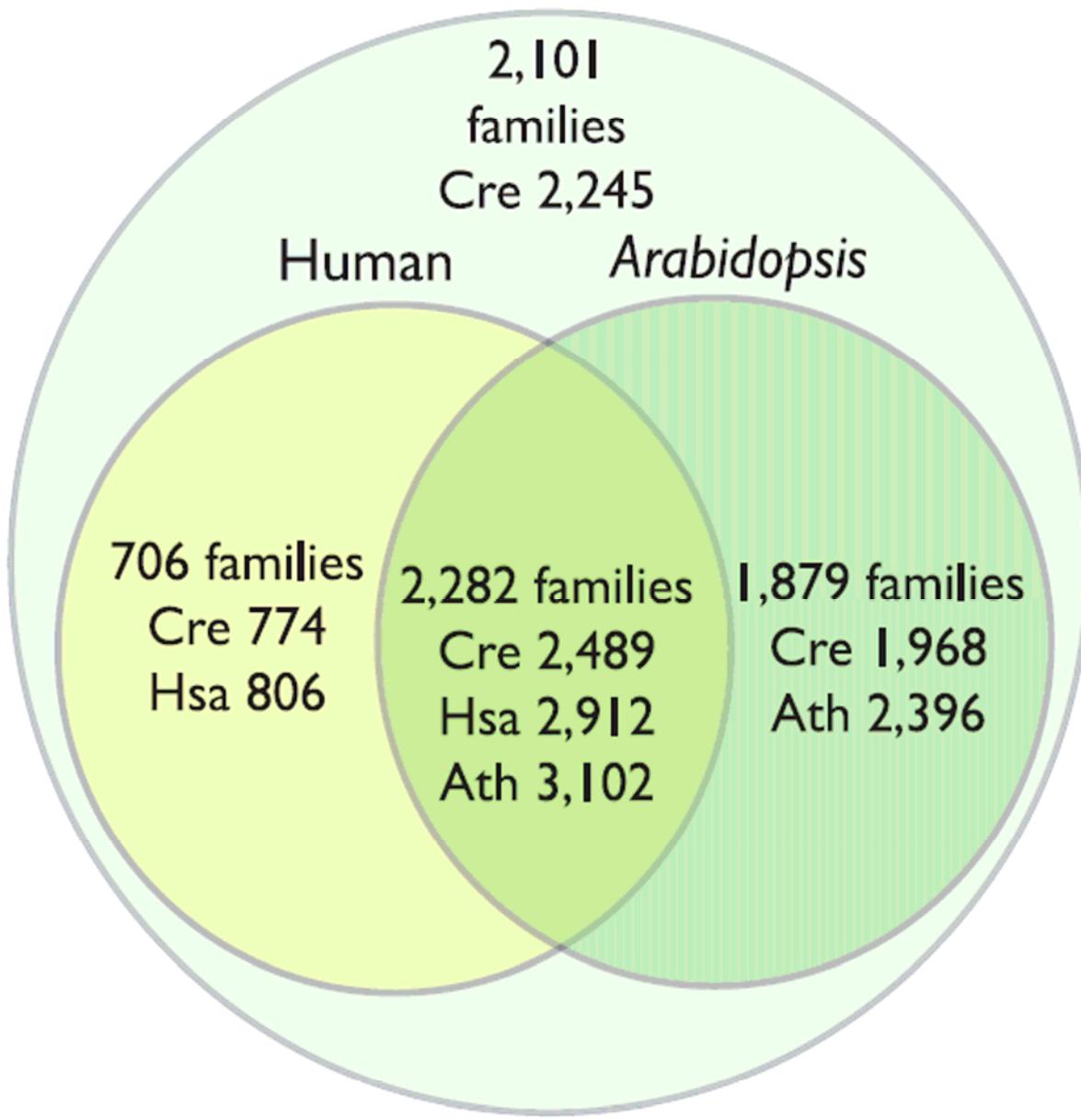
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	B. The Extent to Which Cell Reproductive Sequences Overlap Is Proportional to the Growth Rate	255
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	D. Temporal Pattern of the Cell Reproductive Sequences in <i>Chlorella</i> and <i>Chlamydomonas</i> — the Clustered Type of Multiple Fission	263
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	F. The Event Monitoring Growth and the Signal for Commitment	267
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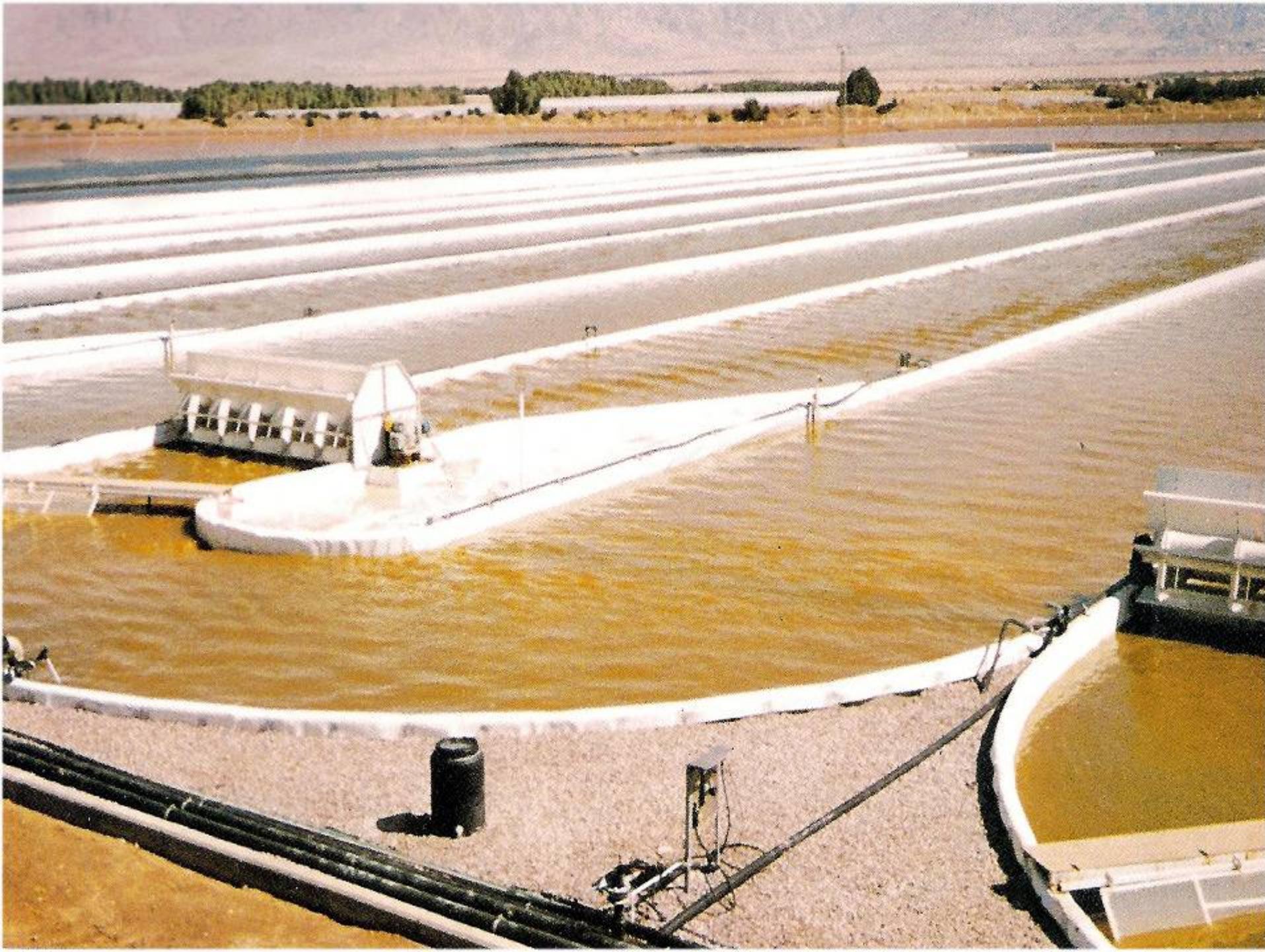
The *Chlamydomonas* Genome Reveals the Evolution of Key Animal and Plant Functions

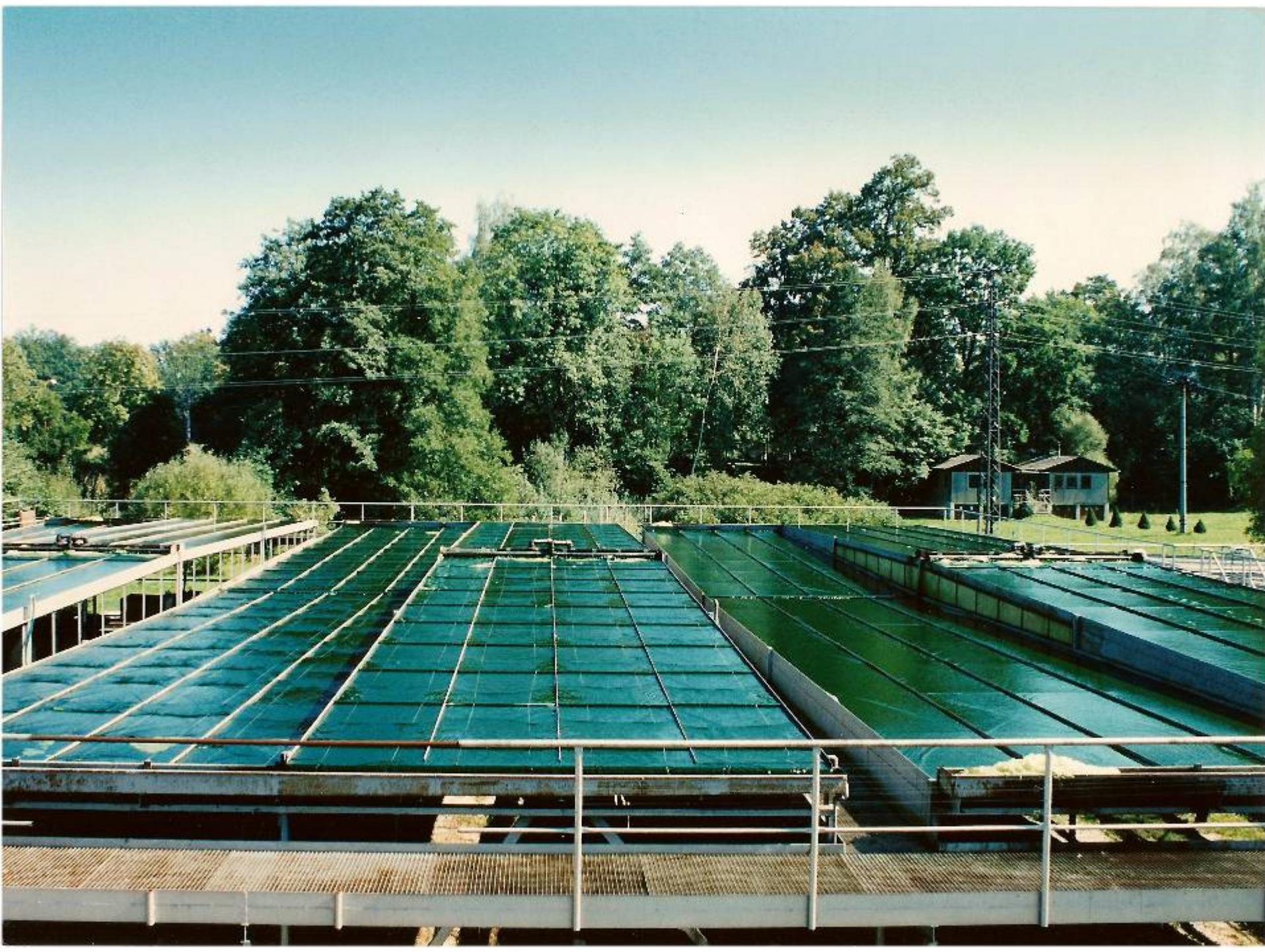
Sabeeha S. Merchant,^{1*} Simon E. Prochnik,^{2*} Olivier Vallon,³ Elizabeth H. Harris,⁴ Steven J. Karpowicz,¹ George B. Witman,⁵ Astrid Terry,² Asaf Salamov,² Lillian K. Fritz-Laylin,⁶ Laurence Maréchal-Drouard,⁷ Wallace F. Marshall,⁸ Liang-Hu Qu,⁹ David R. Nelson,¹⁰ Anton A. Sanderfoot,¹¹ Martin H. Spalding,¹² Vladimir V. Kapitonov,¹³ Qinghu Ren,¹⁴ Patrick Ferris,¹⁵ Erika Lindquist,² Harris Shapiro,² Susan M. Lucas,² Jane Grimwood,¹⁶ Jeremy Schmutz,¹⁶ ***Chlamydomonas* Annotation Team,†** JGI Annotation Team,†
Igor V. Grigoriev,² Daniel S. Rokhsar,^{2,6}‡ Arthur R. Grossman¹⁷‡

Chlamydomonas



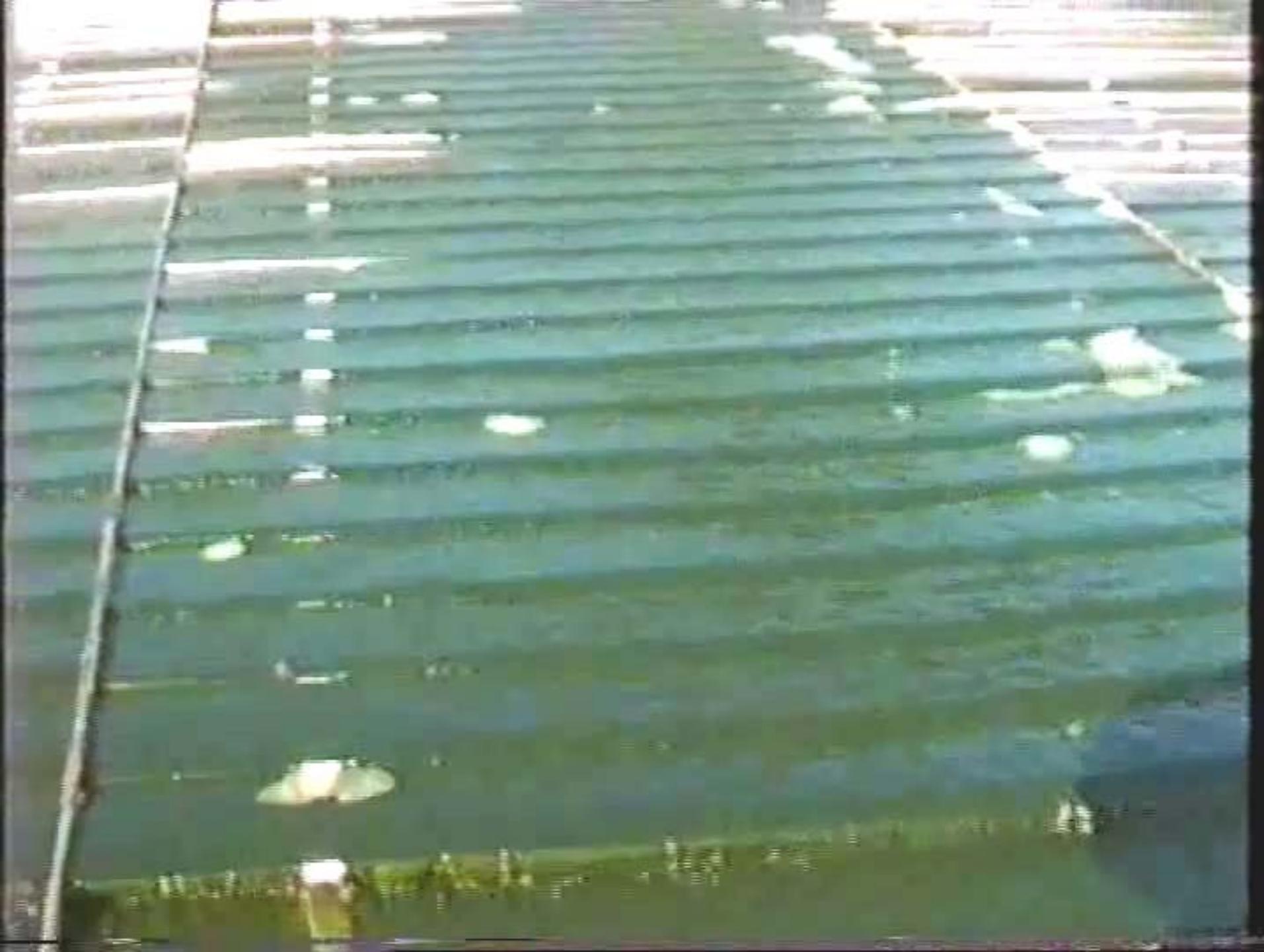


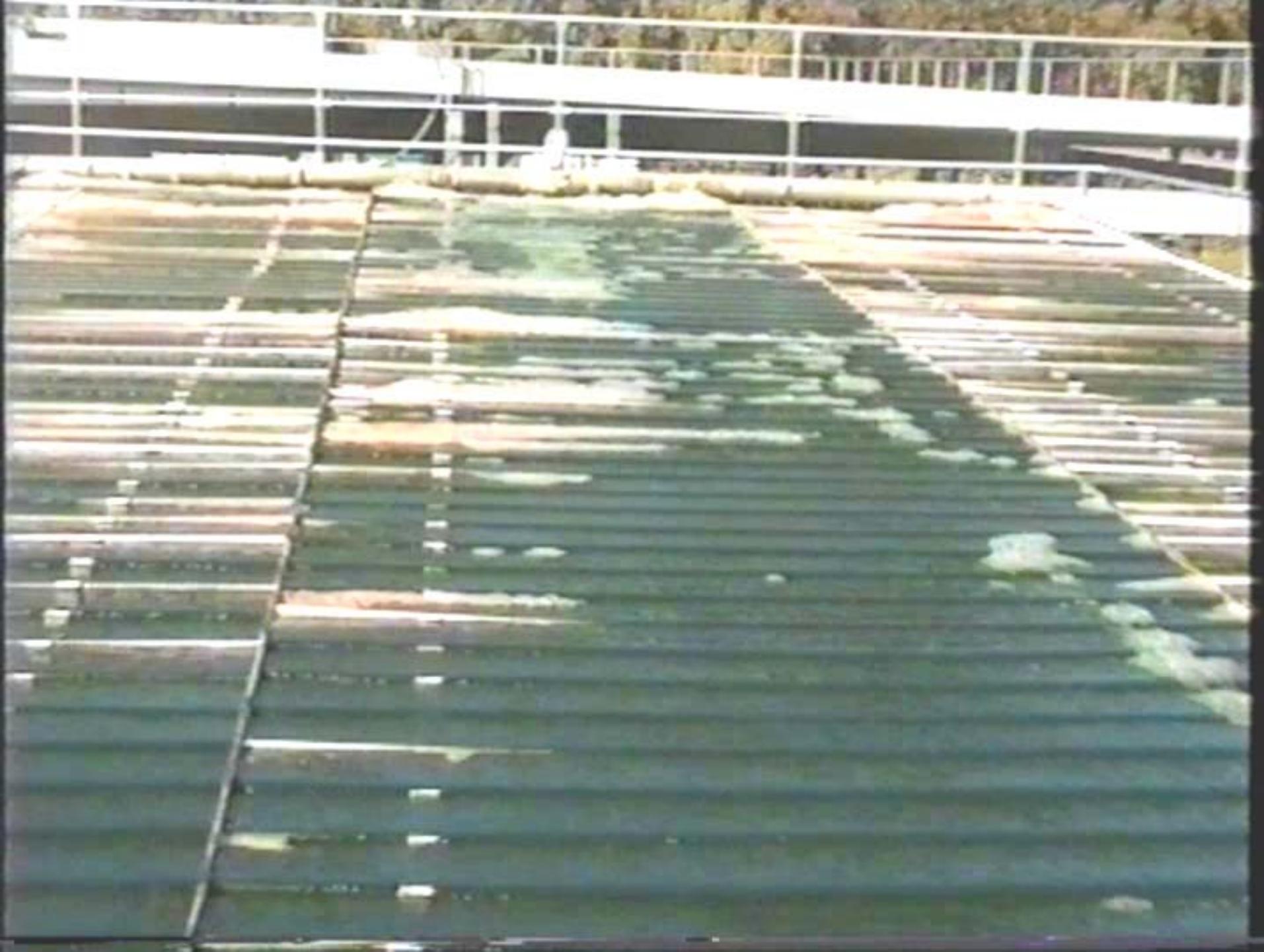














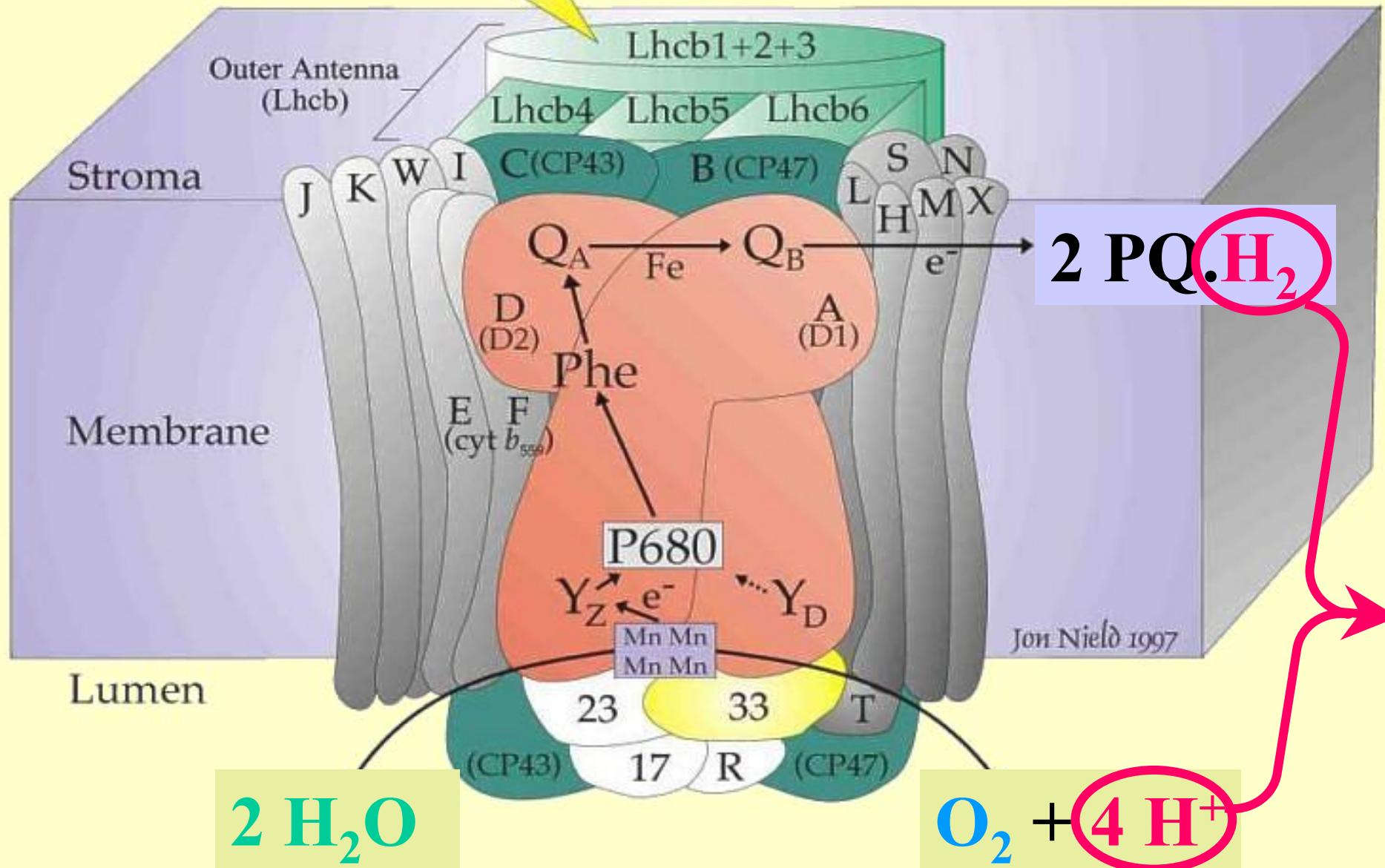


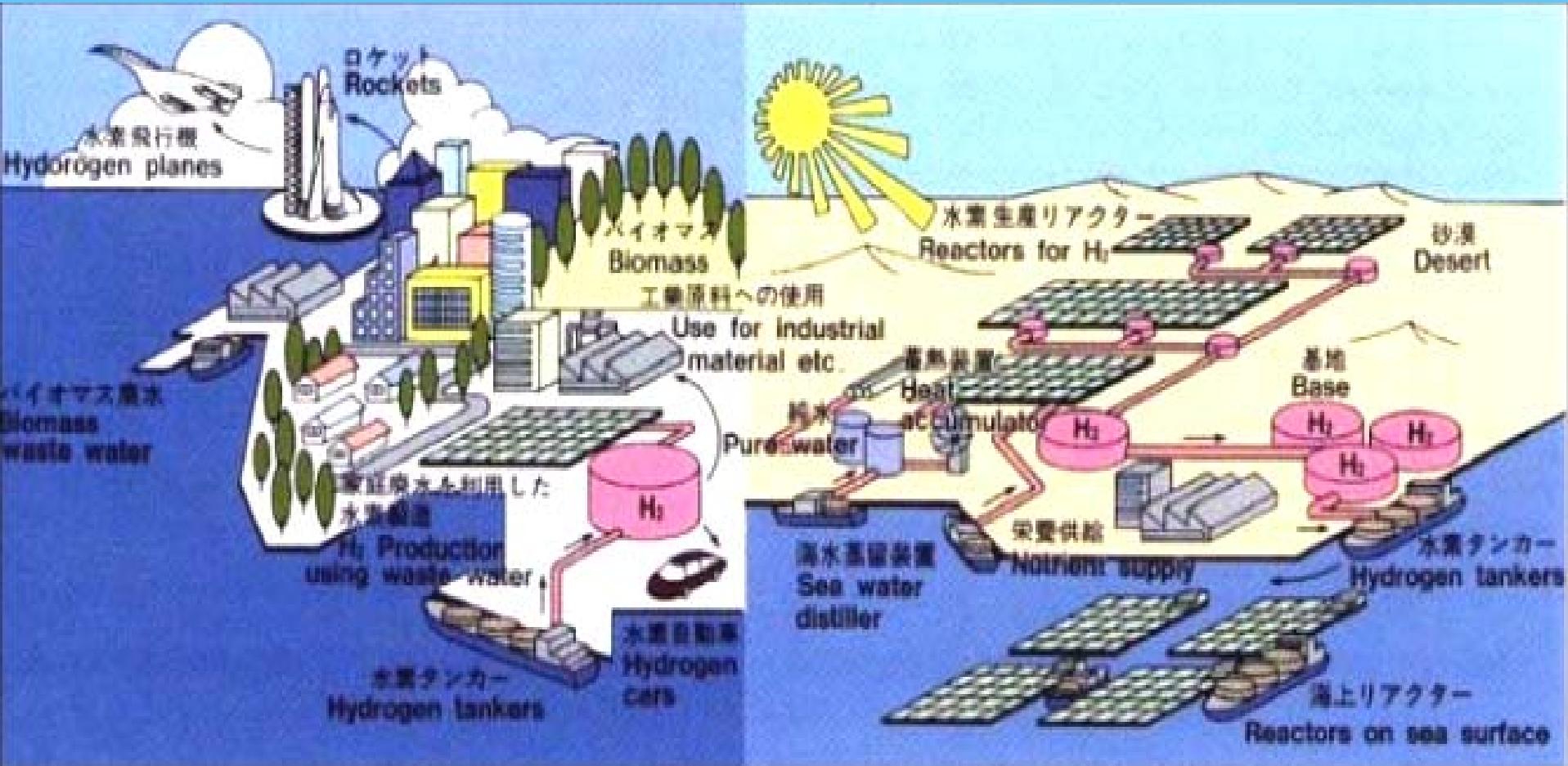






$4 \times h\nu$





Regular paper

Three types of Photosystem II photoinactivation

1. Damaging processes on the acceptor side

Ivan Šetlik,¹ Suleyman I. Allakhverdiev,² Ladislav Nedbal,¹ Eva Šetliková¹ & Vyacheslav V. Klimov²

¹*Institute of Microbiology, Czechoslovak Academy of Sciences, 37981 Třeboň, Czechoslovakia;* ²*Institute of Soil Science and Photosynthesis, USSR Academy of Sciences, 142292 Pushchino, USSR*

Regular paper

Three types of Photosystem II photoinactivation.

2. Slow processes

Ladislav Nedbal, Jiří Masojídek, Josef Komenda, Ondřej Prášil & Ivan Šetlik

Institute of Microbiology, Czechoslovak Academy of Sciences, 37981 Třeboň, Czechoslovakia

The Exposed N-Terminal Tail of the D1 Subunit Is Required for Rapid D1 Degradation during Photosystem II Repair in *Synechocystis* sp PCC 6803^W

Josef Komenda,^{a,b,1} Martin Tichý,^{a,b} Ondřej Prášil,^{a,b} Jana Knoppová,^{a,b} Stanislava Kuvíková,^{a,b} Remco de Vries,^c and Peter J. Nixon^c

^a Institute of Microbiology, Academy of Sciences, Opatovický mlýn, 37981 Třeboň, Czech Republic

^b Institute of Physical Biology, University of South Bohemia, Zámek 136, 37333 Nové Hrady, Czech Republic

^c Division of Biology, Faculty of Natural Sciences, Imperial College London, London SW7 2AZ, United Kingdom

The Plant Cell Preview, www.aspb.org © 2007

Role of the PsbI protein in Photosystem II assembly and repair in the cyanobacterium *Synechocystis* sp. PCC6803

Marika Dobáková, Martin Tichý and Josef Komenda

Institute of Microbiology, Academy of Sciences of the Czech Republic, Opatovický mlýn, 37981 Třeboň and Institute of Physical Biology, University of South Bohemia, Zámek 136, 37333 Nové Hrady, Czech Republic

Plant Physiology, December 2007, Vol. 145, pp. 1–11,

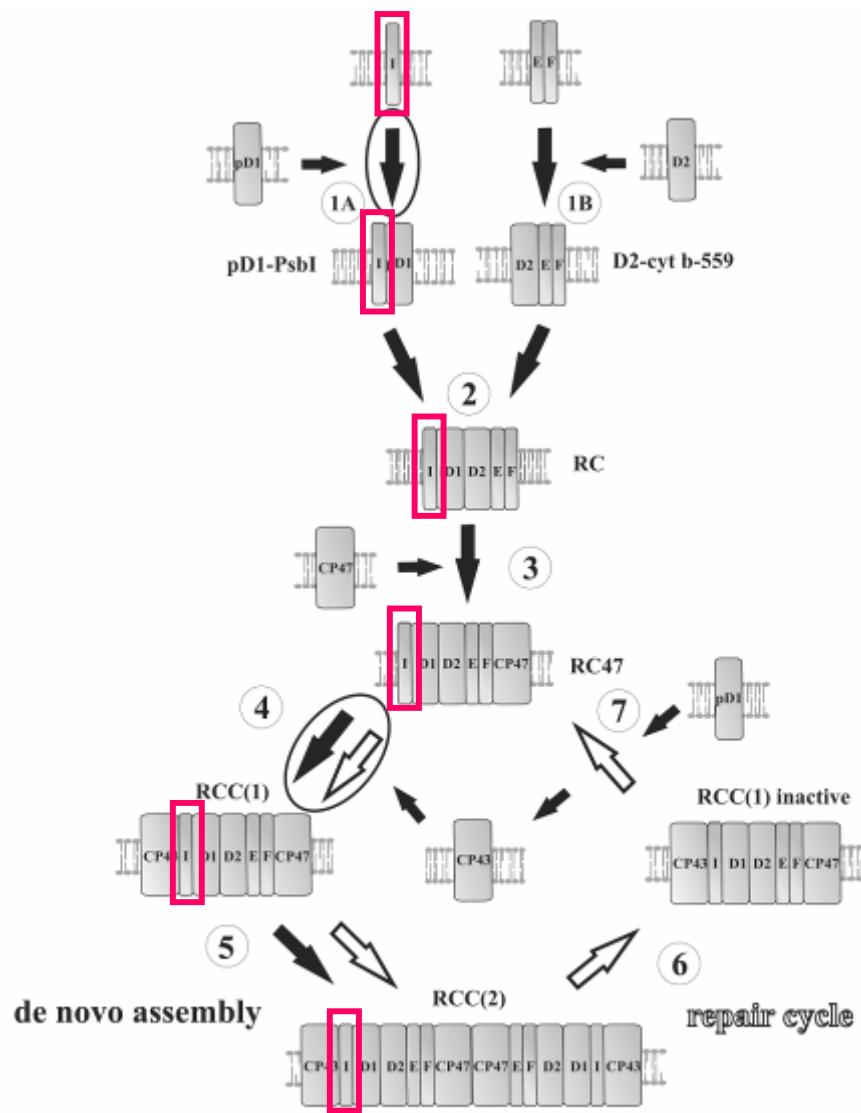
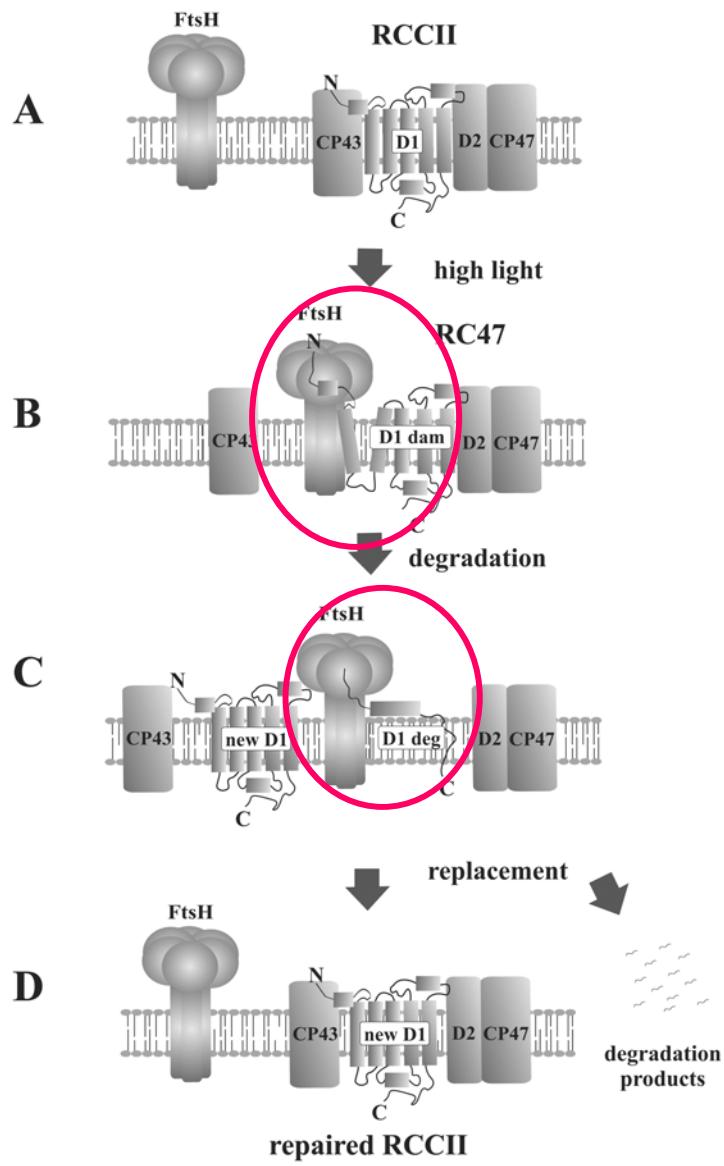
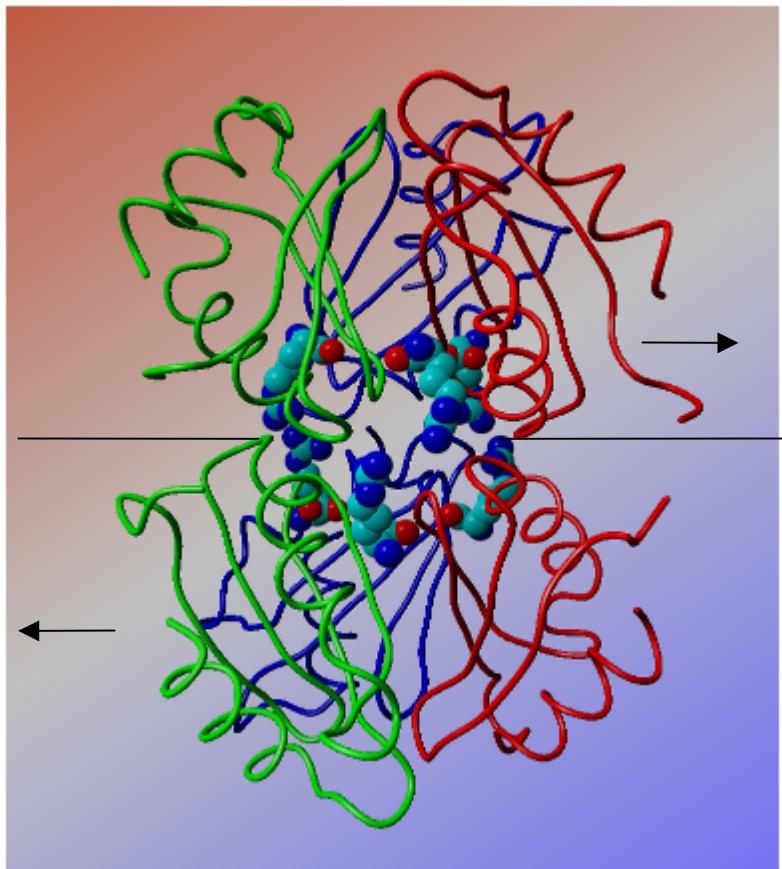


Fig. 11

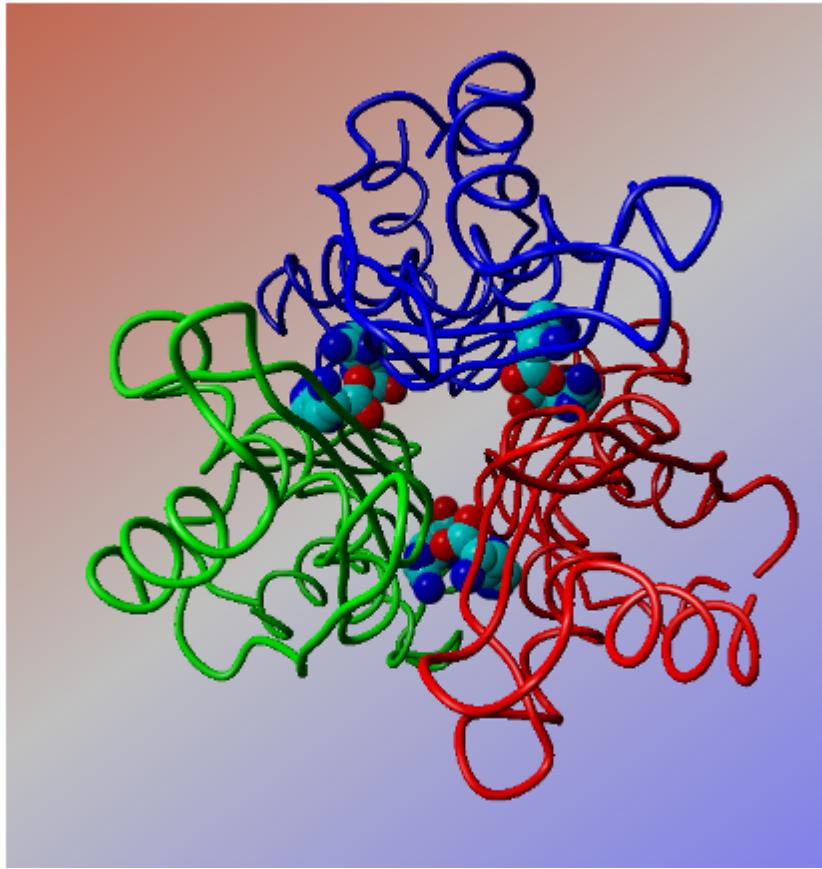
Fig. 8



Structure of the Arginine Repressor Hexamer with 6 bound L-arginines

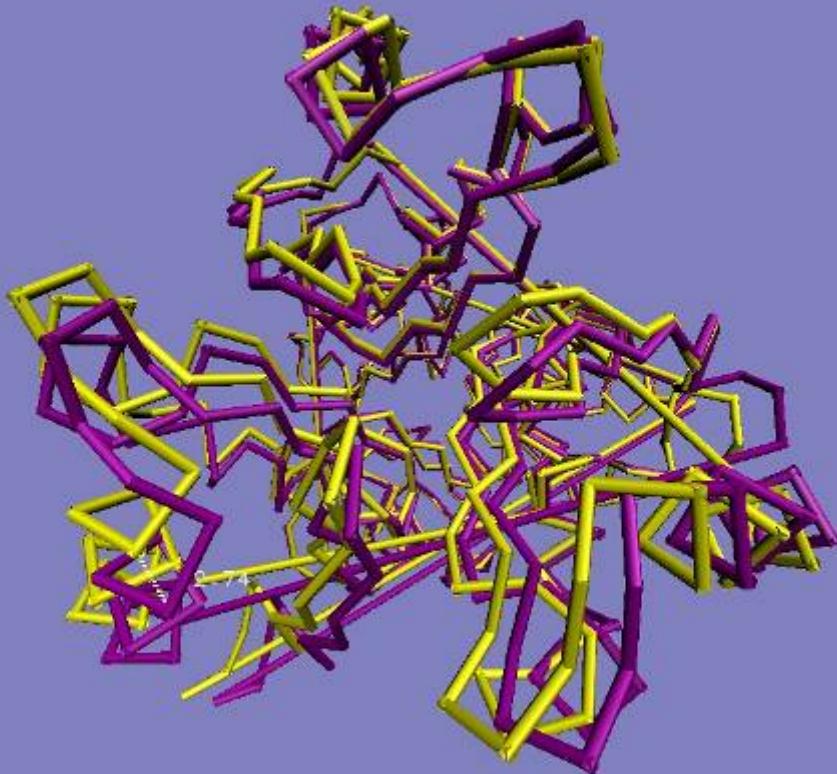
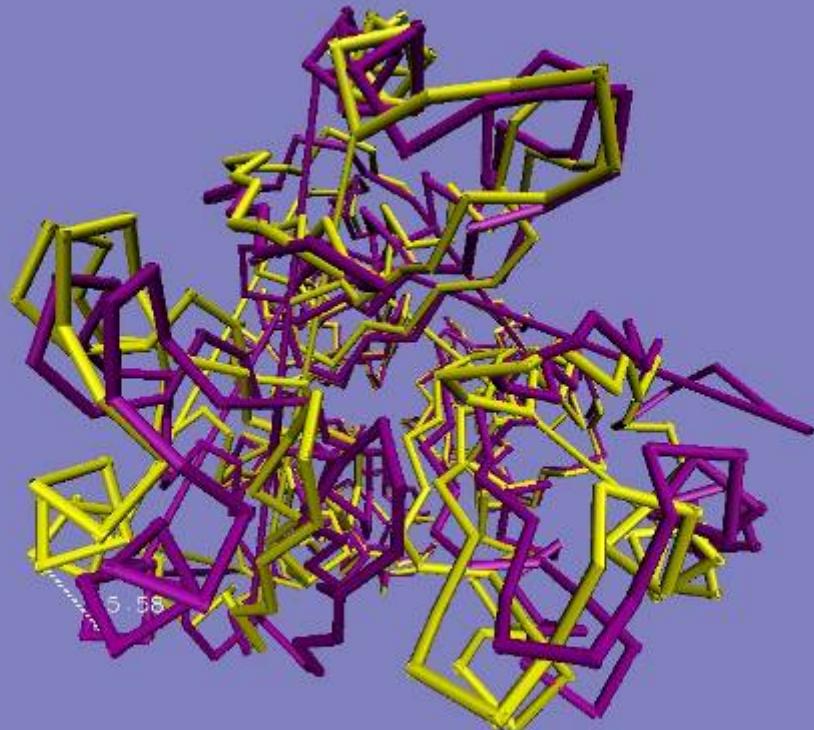


left: side view



right: top view

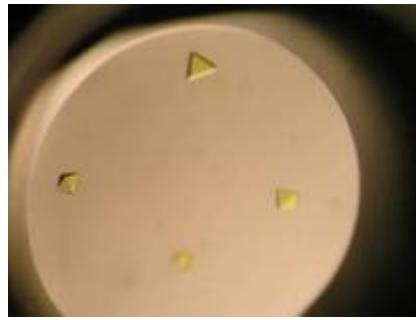
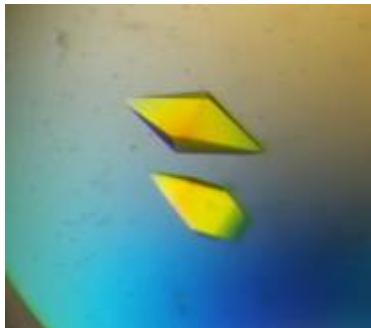
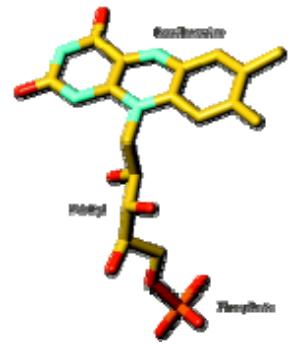
4th eigenvector of a 20ns MD simulation of ArgC (C_alpha trace)



left: the maximum movement on the outer part of C-alpha of ArgC is 5.7 Å, corresponding to a rotation with an angle of 13 degrees as maximum value.

right: ArgC with the presence of one L-Arginine gives a value of maximum movement of 3.2 Å and an angle of 7 degrees.

X-ray diffraction data of WrbA holoprotein crystals collected at synchrotron



Crystallization
conditions:

25% ethylene glycol

20% PEG 8000
0.1M TrisHCl, pH 8.0

Unit cell

$a = 94.4$ $b = 94.4$

$a = 61.1$ $b = 61.1$

dimensions.:
 $c = 175.4$ [Å]

$\alpha = 90^\circ$ $\beta = 90^\circ$ $\gamma = 90^\circ$

$\alpha = 90^\circ$ $\beta = 90^\circ$ $\gamma = 90^\circ$

Space group:

P4

Resolution:

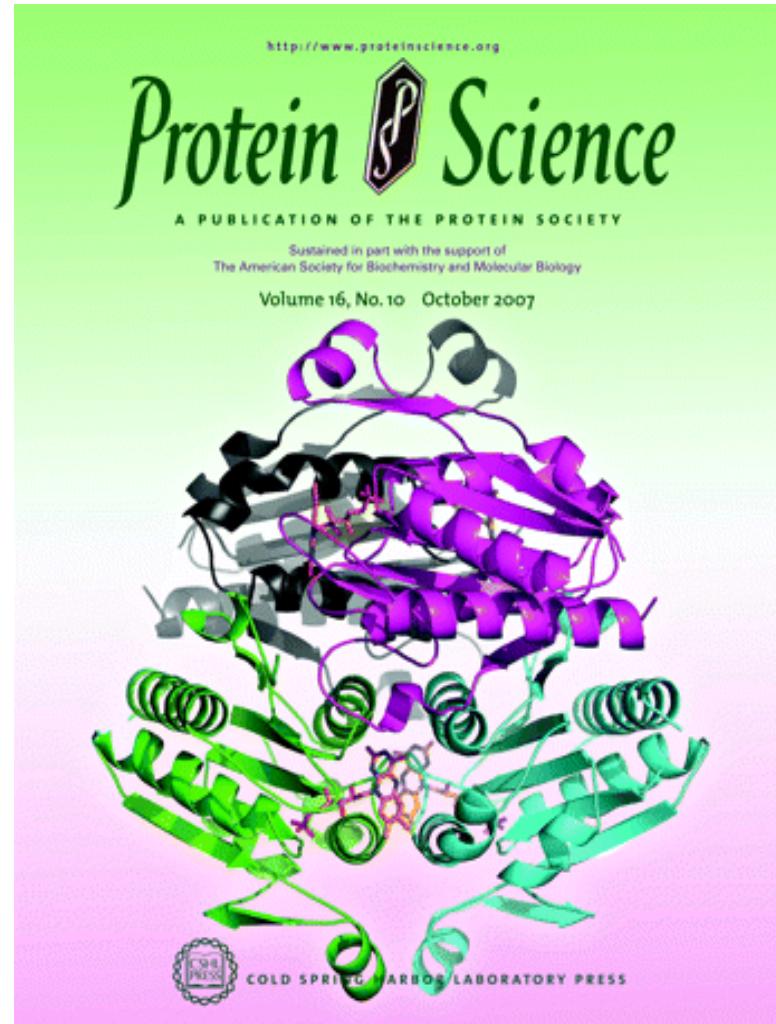
2.65 Å

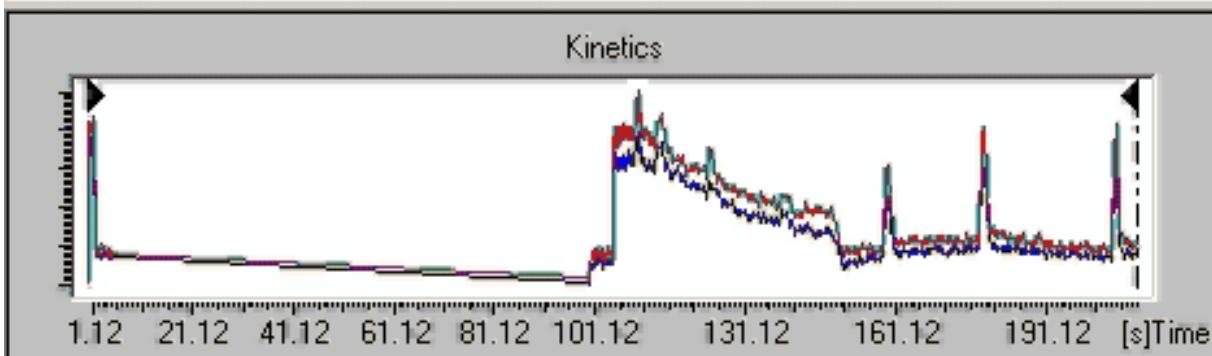
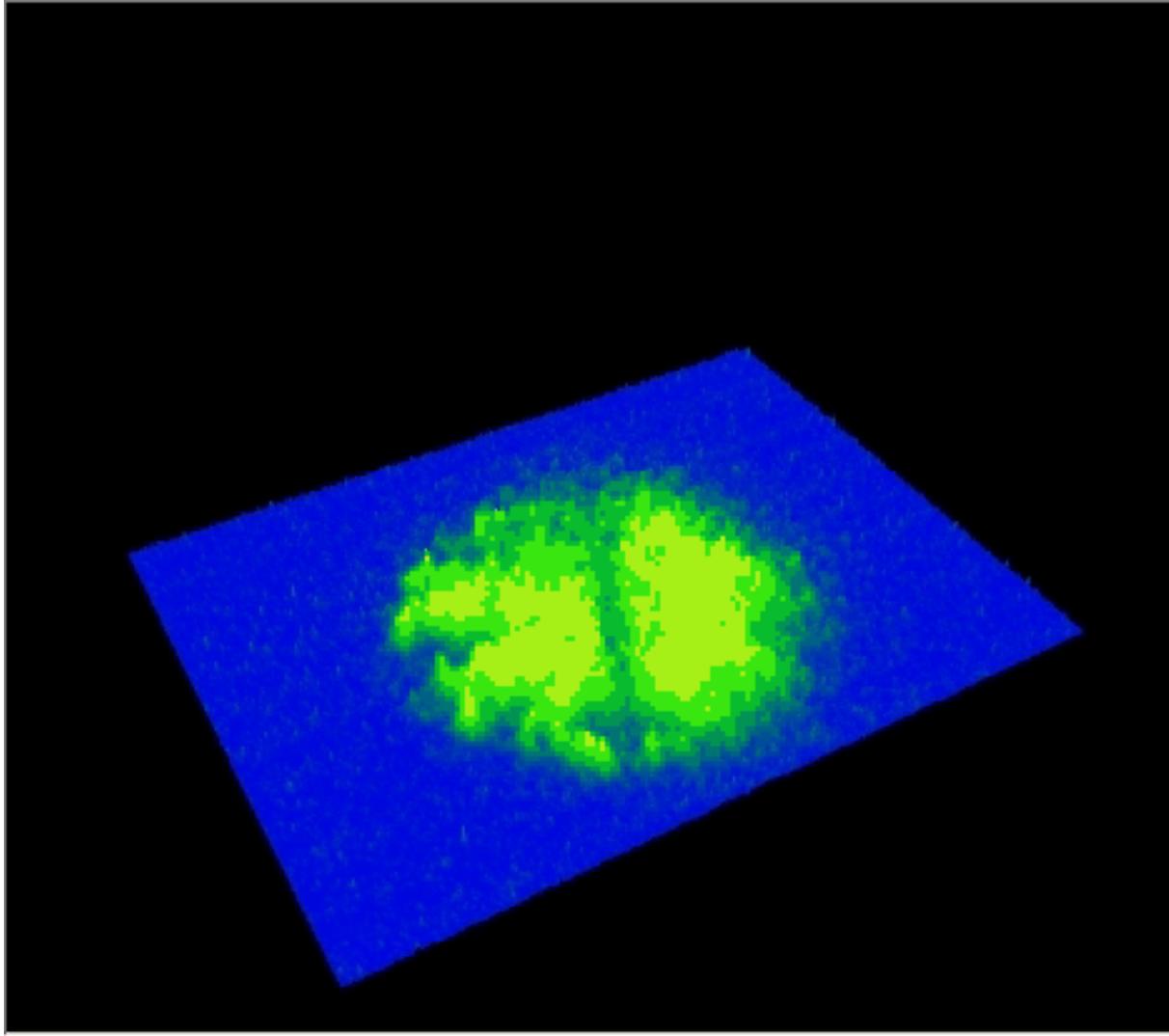
2.0 Å

Measurement: Synchrotron DESY, beamline X13 (Hamburg), EMBL

X-ray wavelength: 0.802 Å

Temperature: 100 K





Family of fluorometers

Non-imaging fluorometers



Standard version
FL 200-S



Fast version
FL 200-F

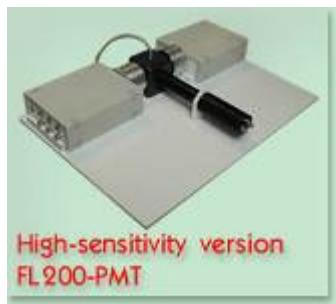
Imaging fluorometers



Open FluorCam



Closed FluorCam



High-sensitivity version
FL 200-PMT



Leaf clip
version
FL 200-LC



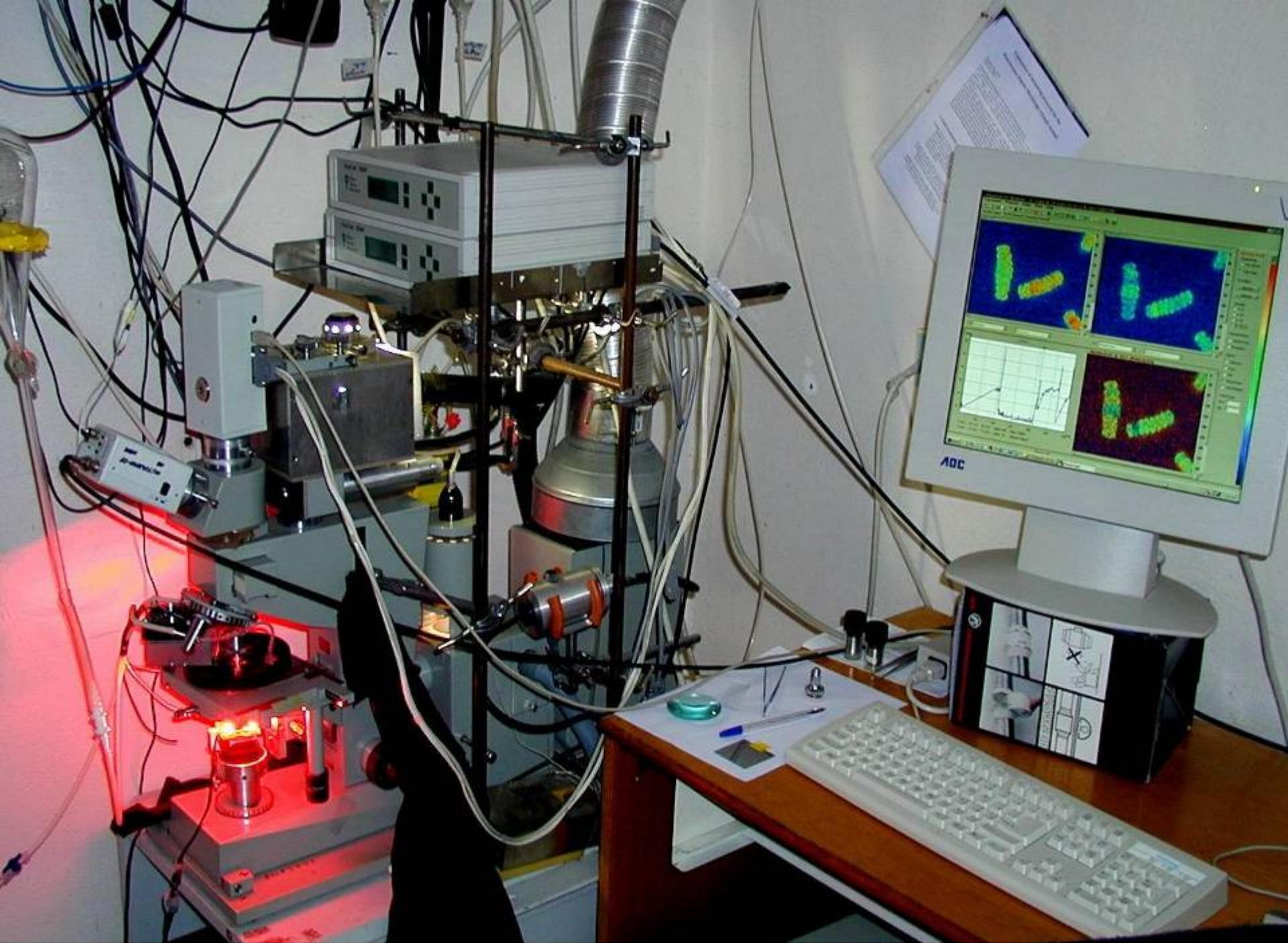
Handy
FluorCam



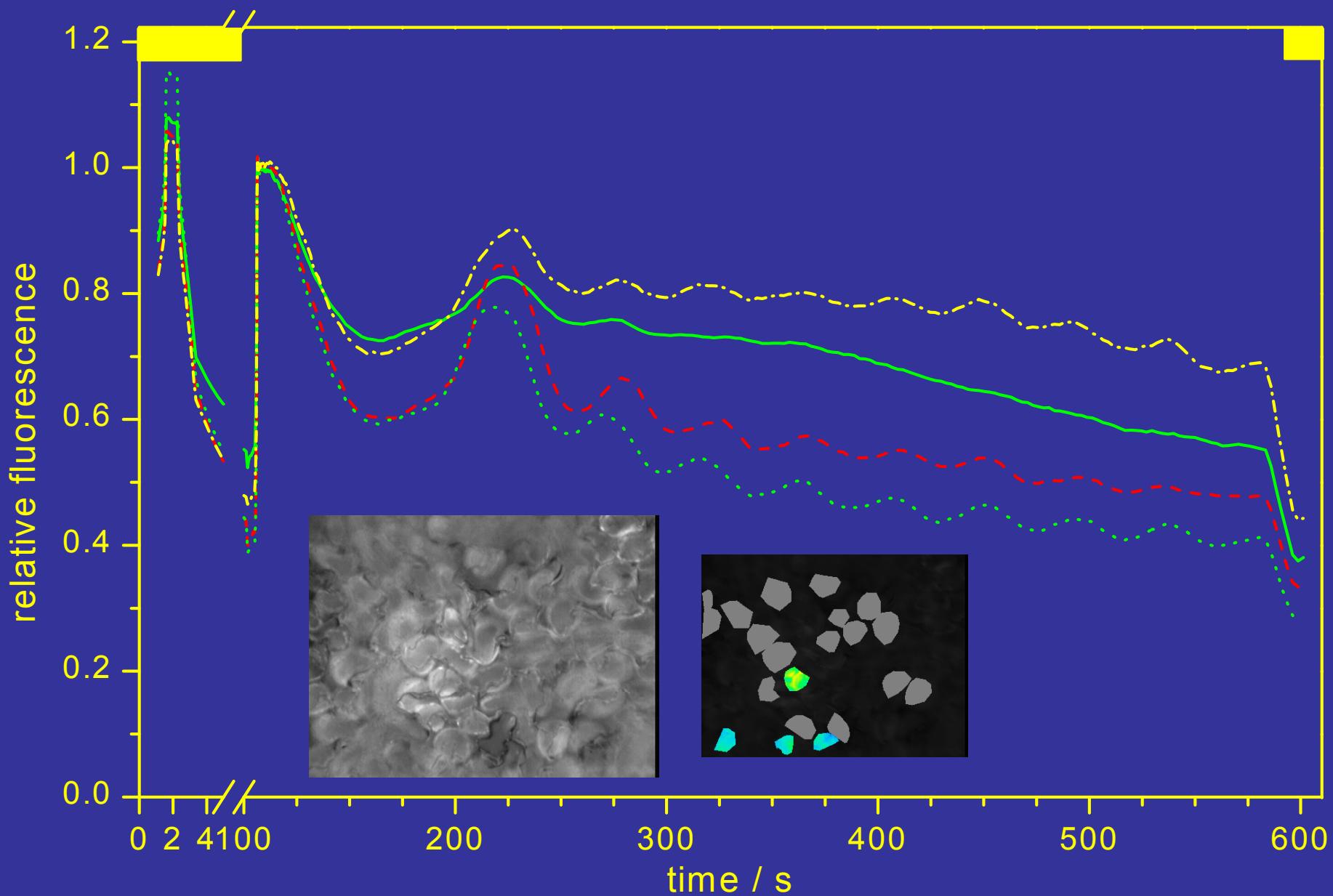
Micro-FluorCam



Thermoluminescence

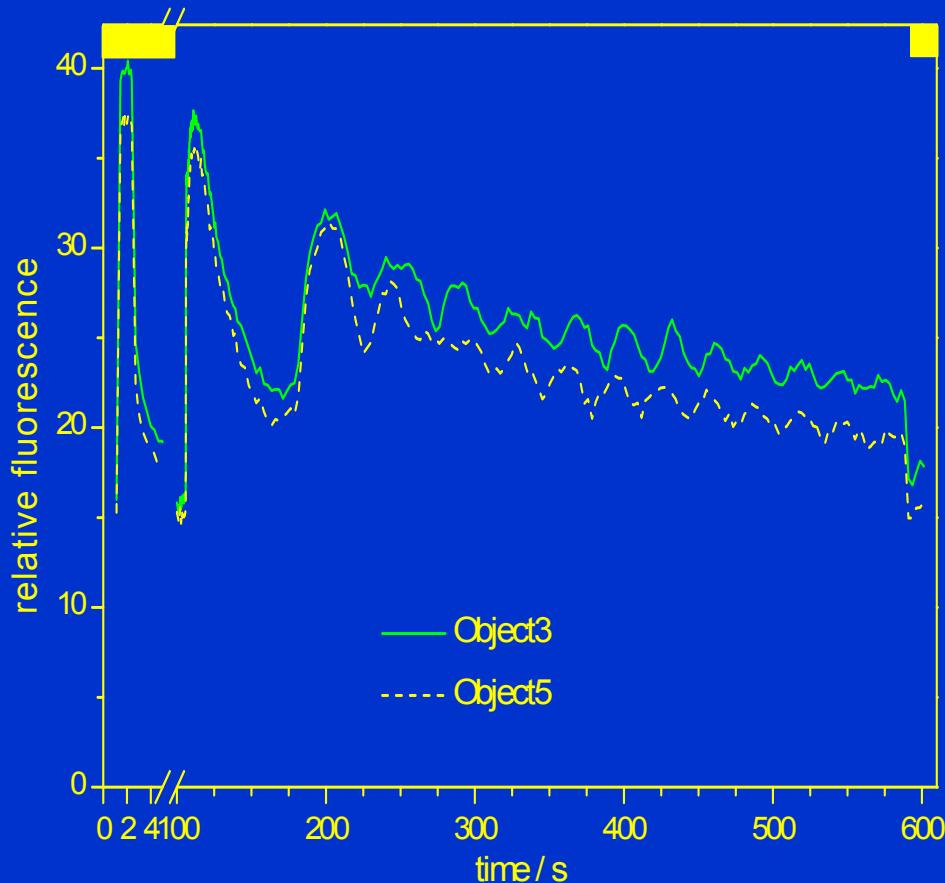


Low Mn²⁺-treatment of *Thlaspi caerulescens*:
Heterogeneity of spontaneous photosynthetic oscillations...

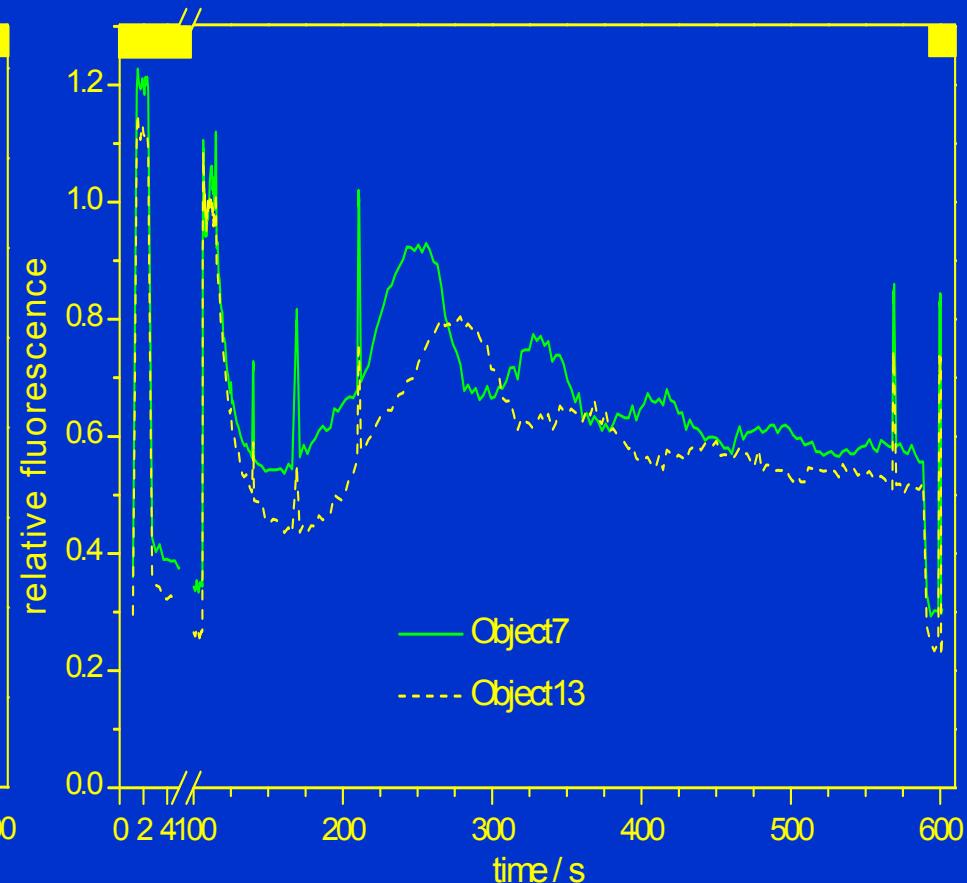


Reaction of the non-accumulator *Thlaspi ochroleucum* to Zn-stress: changes in spontaneous photosynthetic oscillations

Unstressed mature leaf. Period length of dominant oscillation: approx. 30s

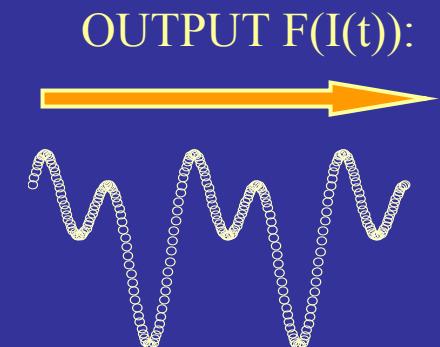
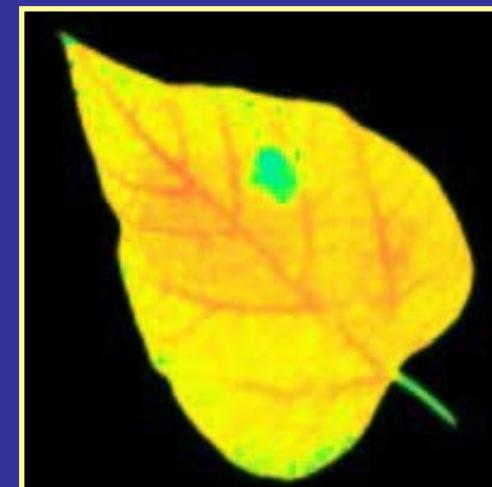
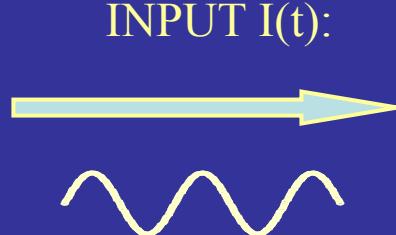


Stressed with 200 μ M Zn²⁺. Period length of dominant oscillation: approx. 80s



“The Sound of Photosynthesis:
Frequency Analysis of Fluorescence Signal
New Tools for Mutant Screening
Regulatory Pathway
Growth Conditions and other ..”

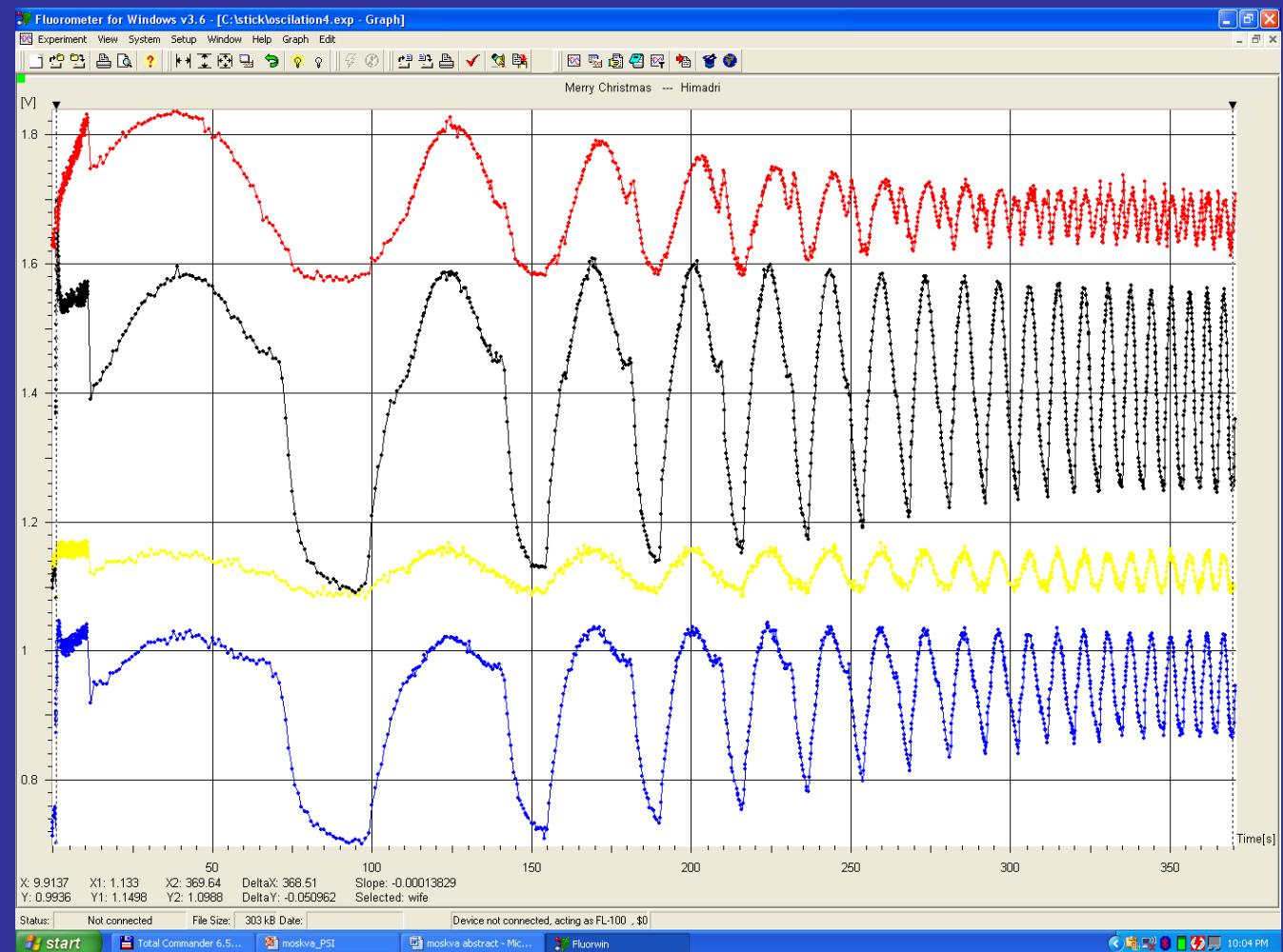
M. Trtilek, L. Nedbal and M. Sicner



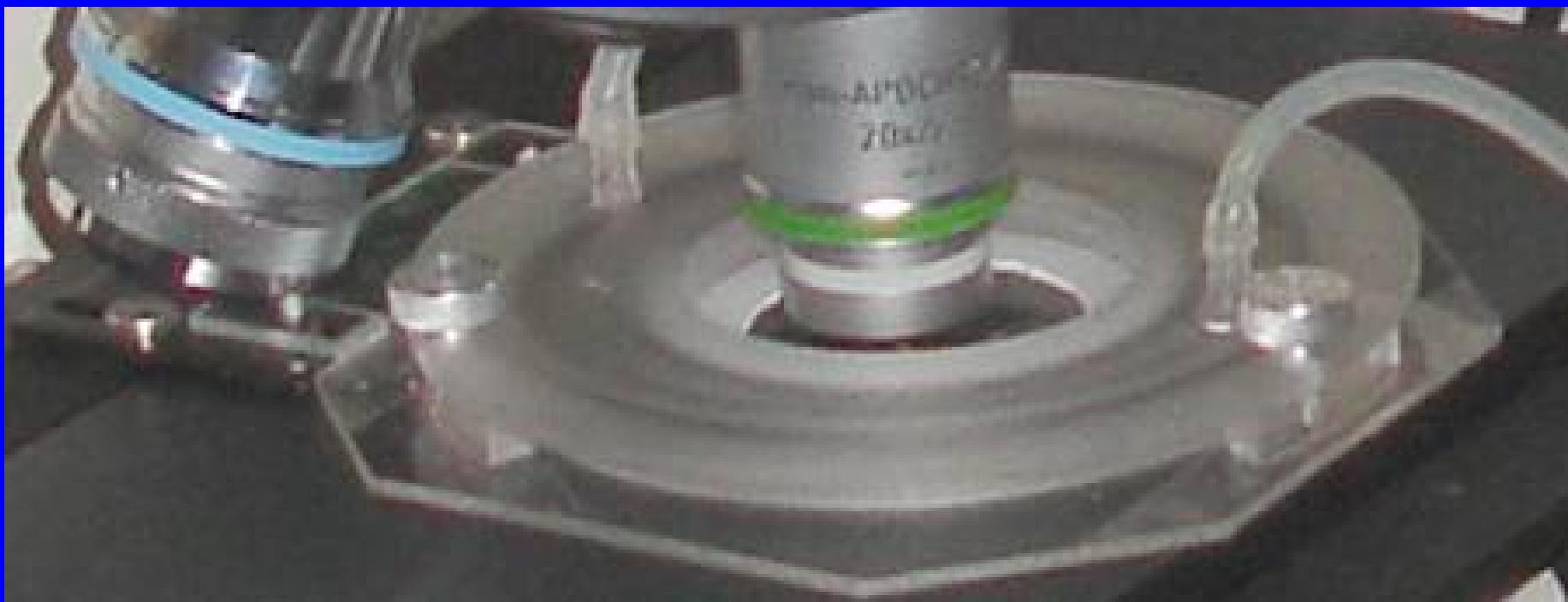
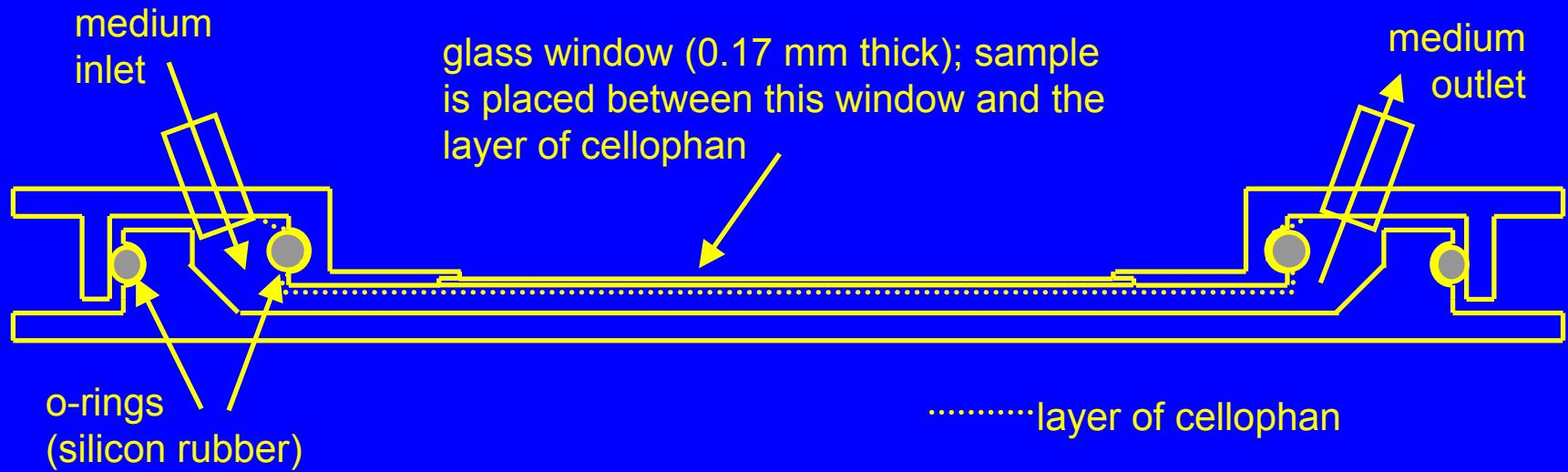
Response on the oscillating light

WT
PsbV
?
1452

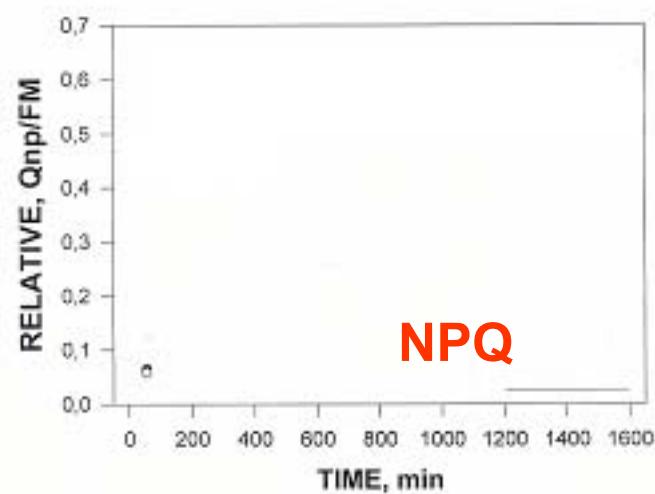
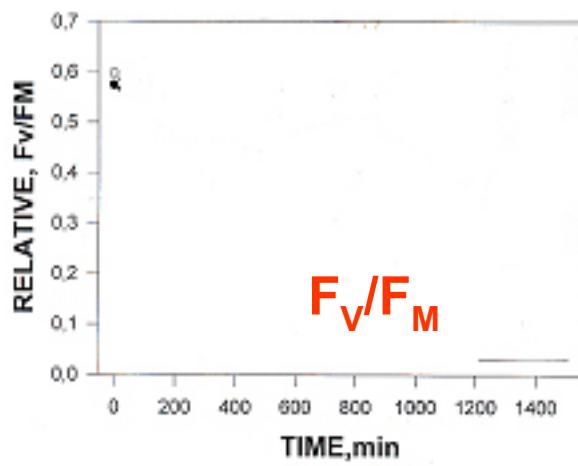
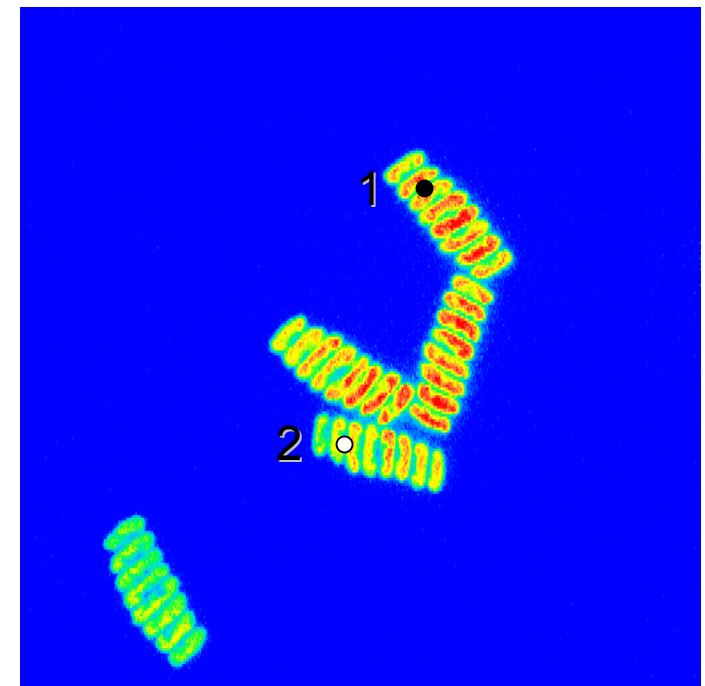
Fluorescence



The FKM measuring chamber

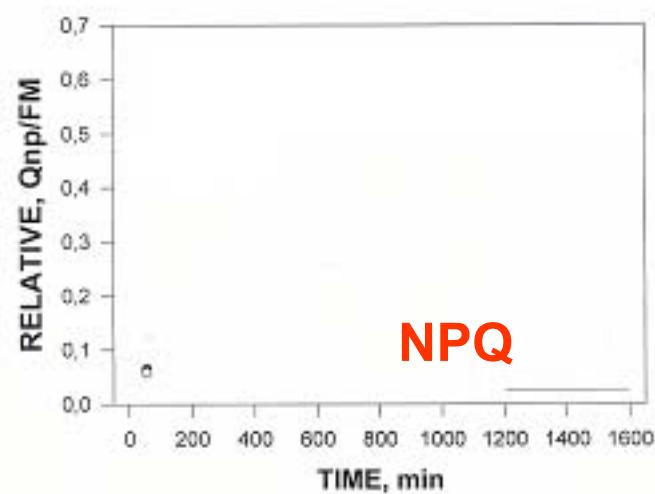
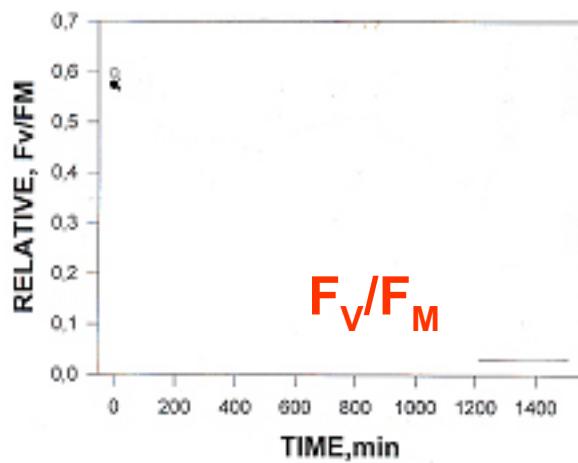
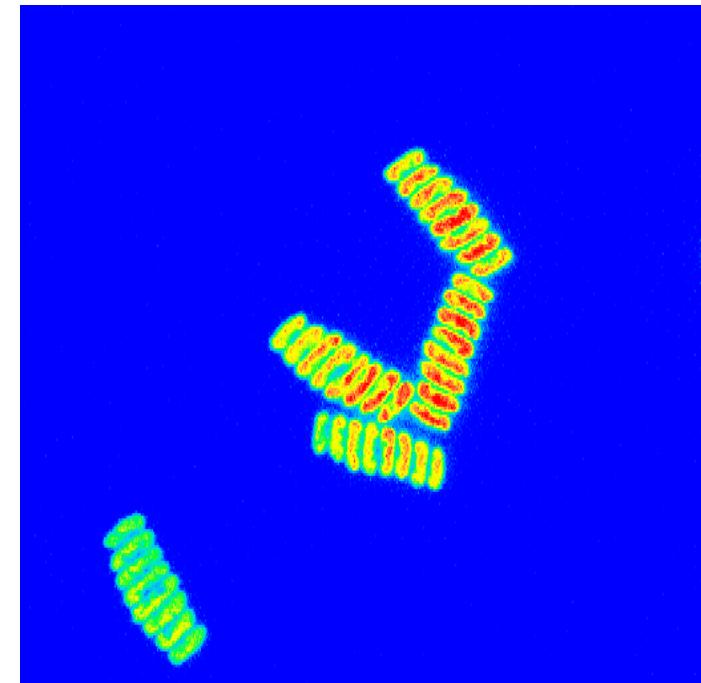


Cell cycle of single cells *Scenedesmus*



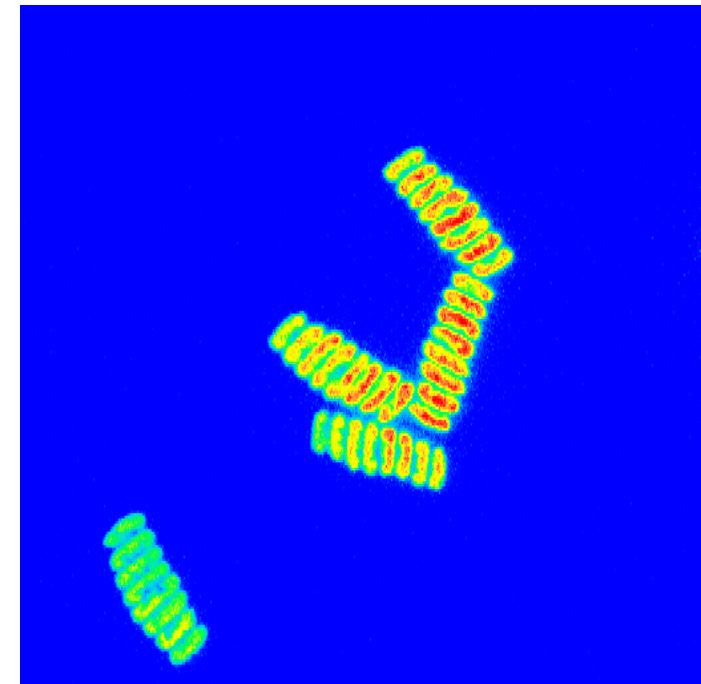
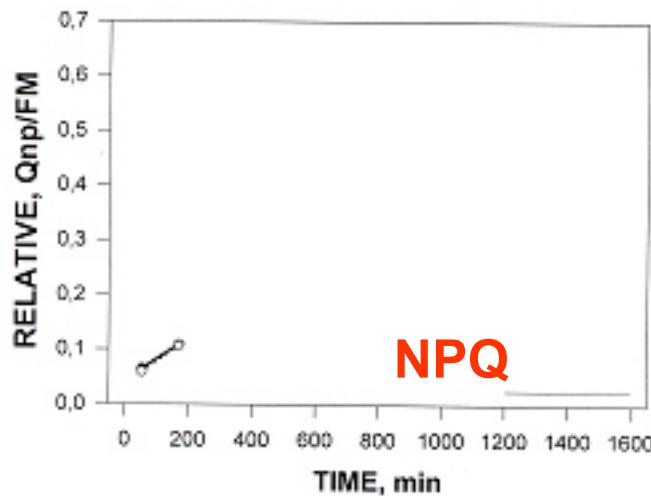
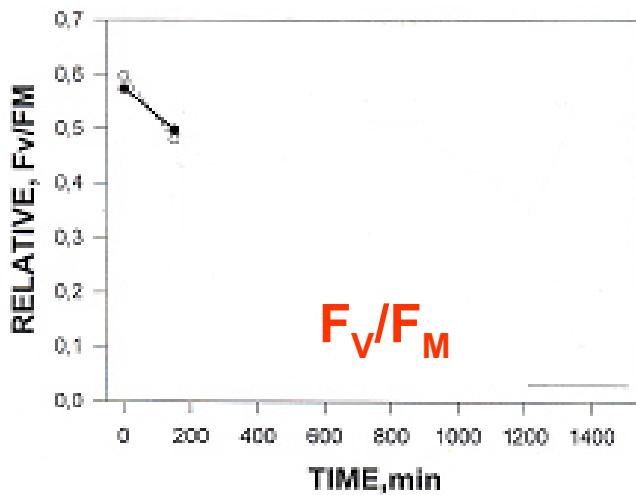
Cell cycle of single cells Scenedesmus

Time: 0 h



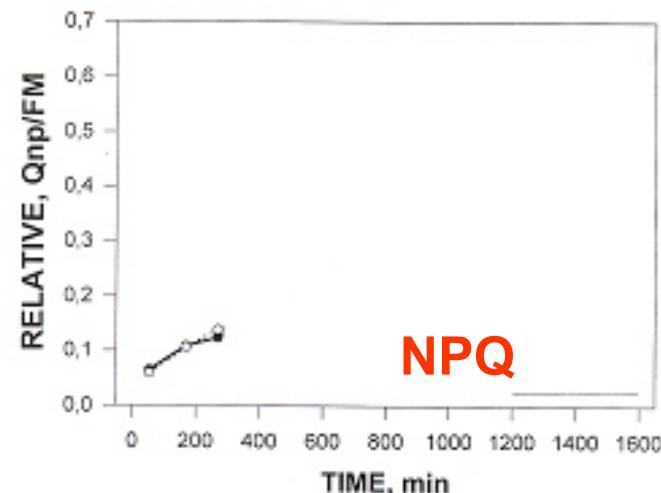
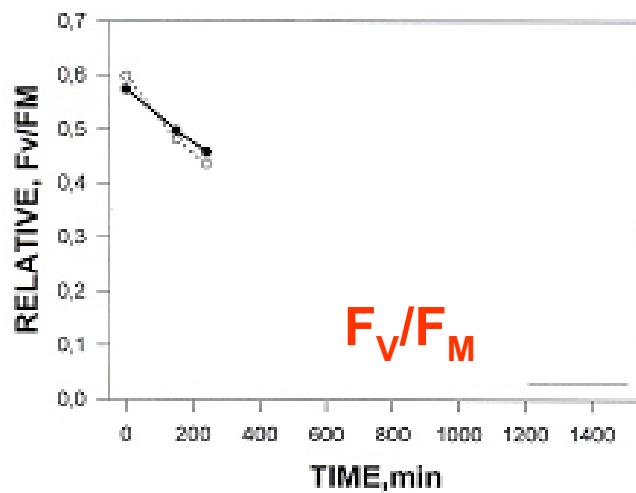
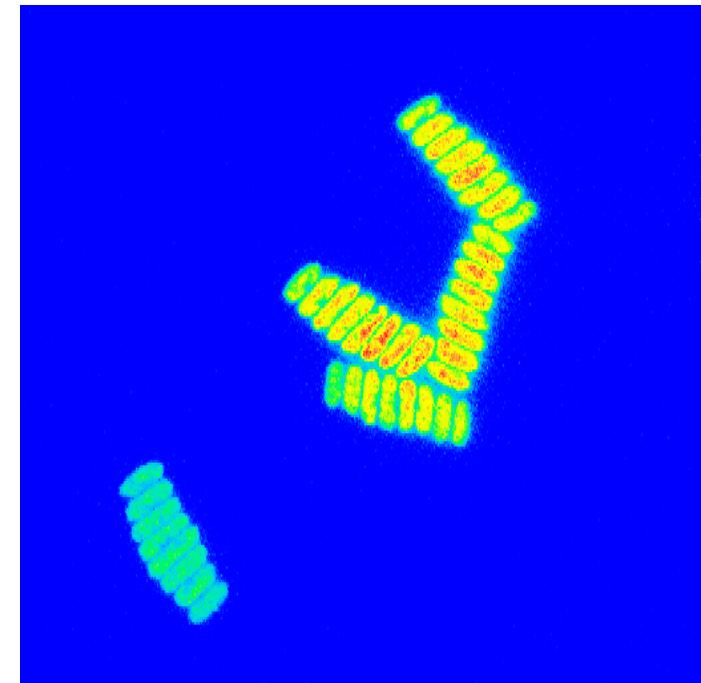
Cell cycle of single cells *Scenedesmus*

Time: 3 h



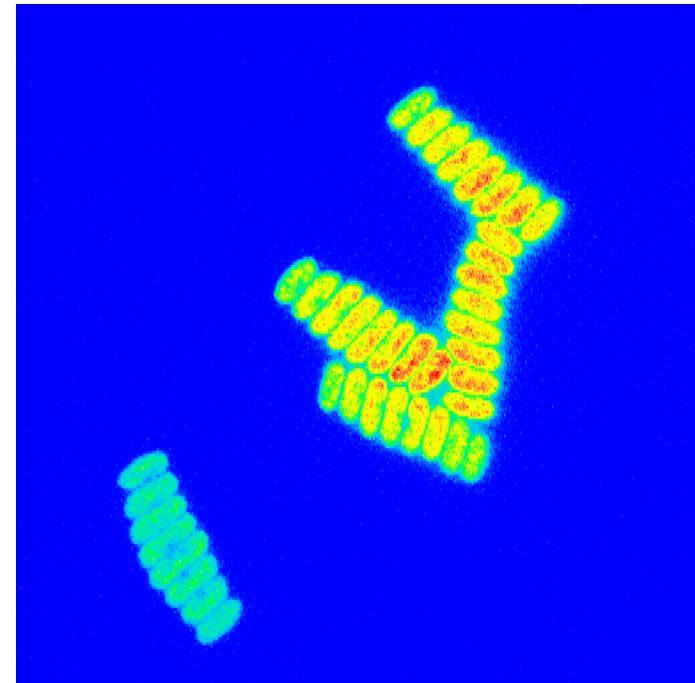
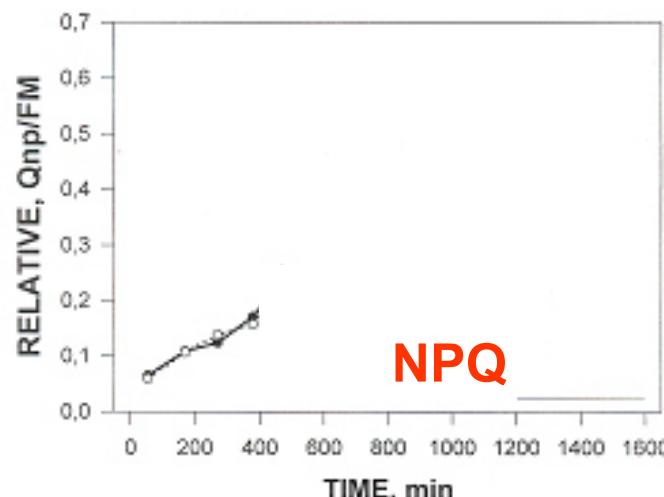
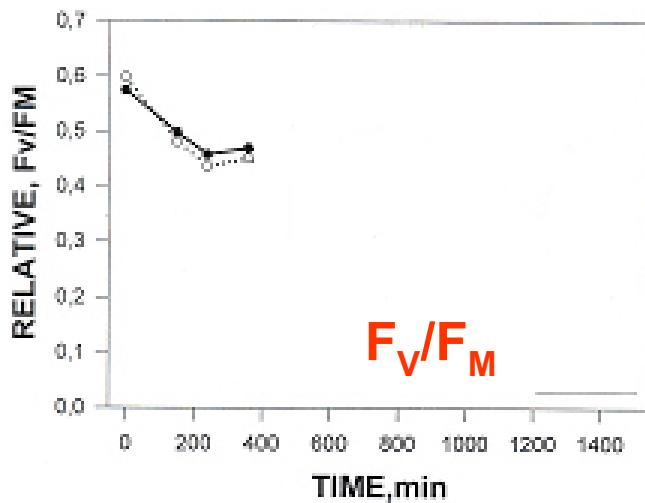
Cell cycle of single cells Scenedesmus

Time: 4 h



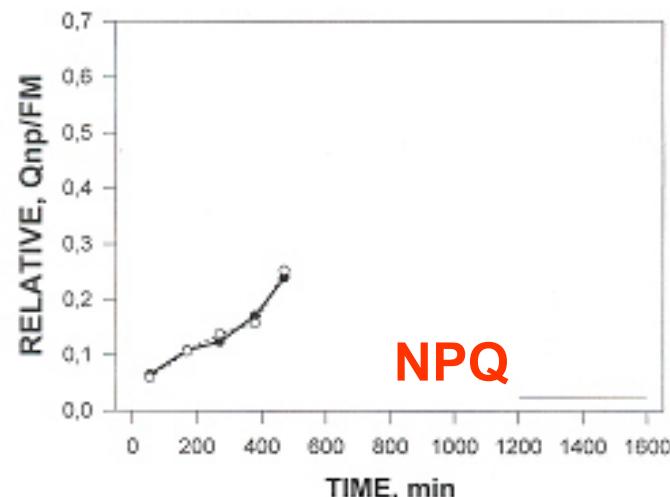
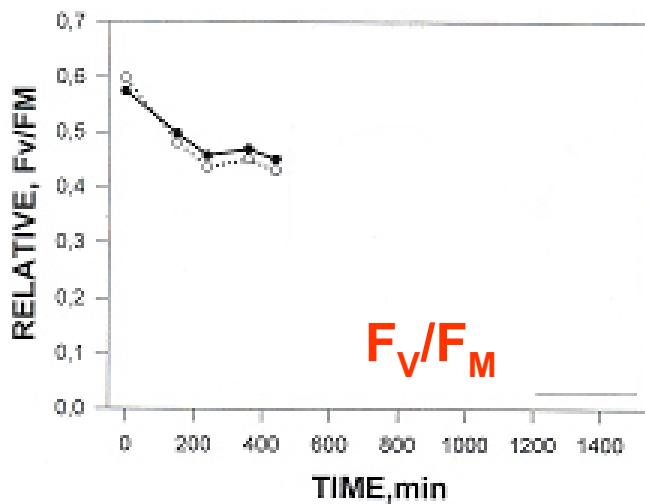
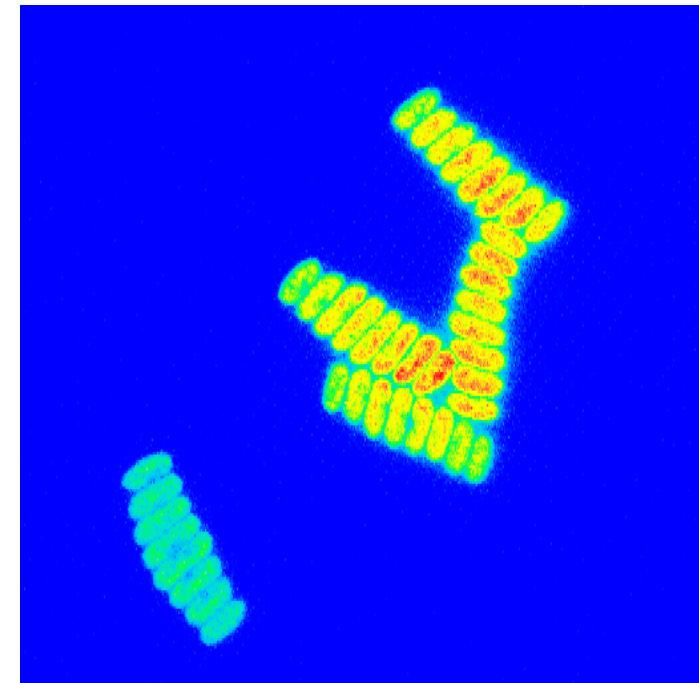
Cell cycle of single cells Scenedesmus

Time: 6 h



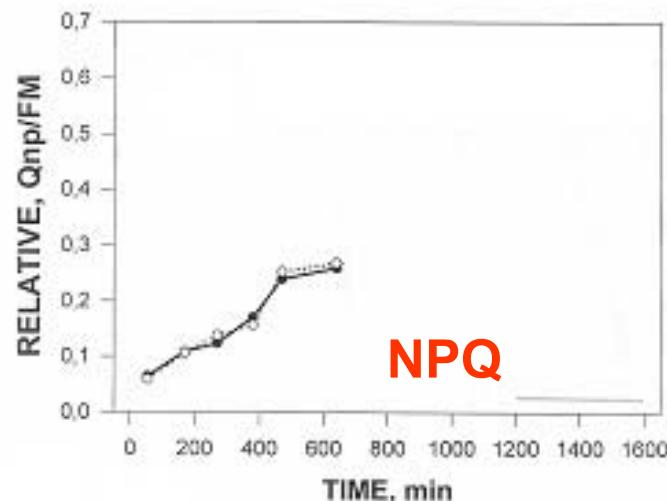
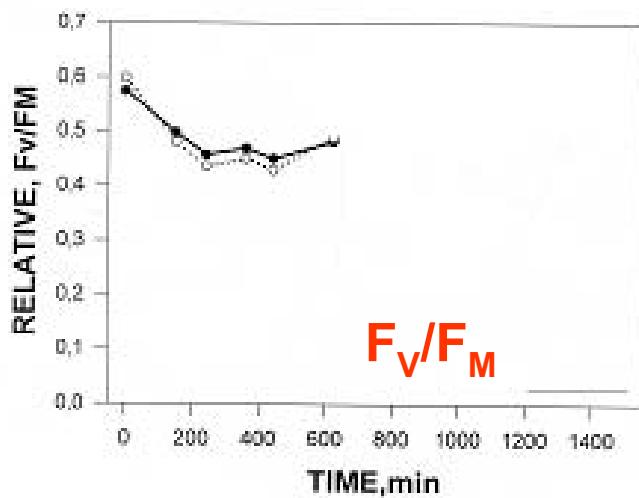
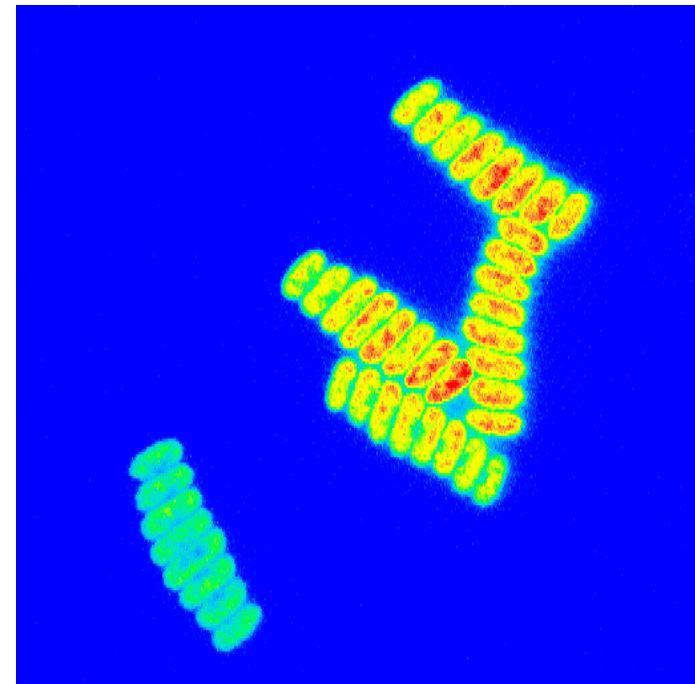
Cell cycle of single cells Scenedesmus

Time: 8 h



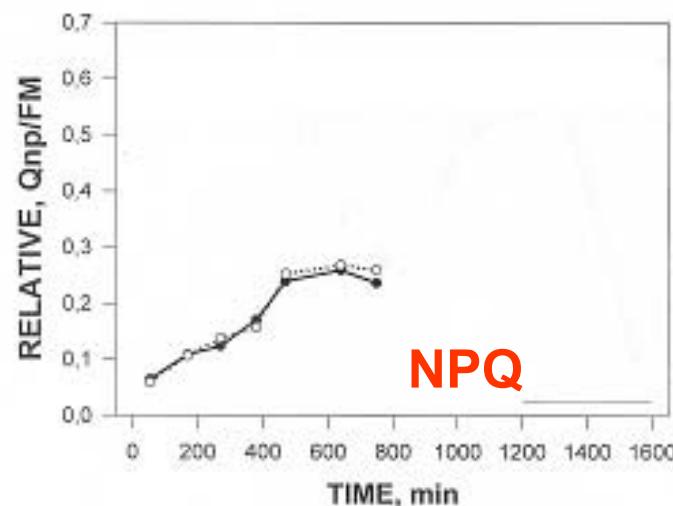
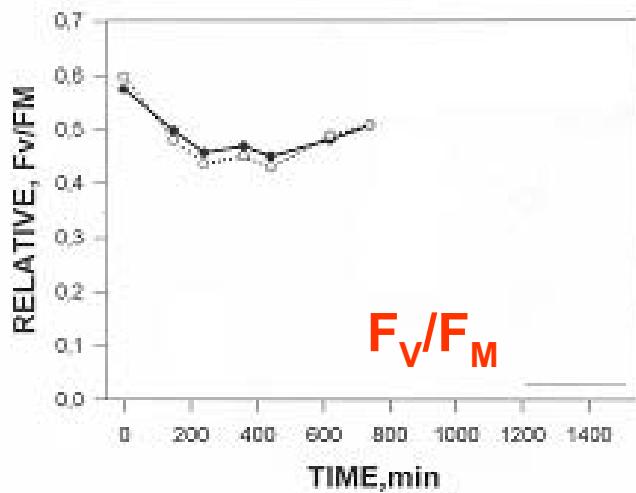
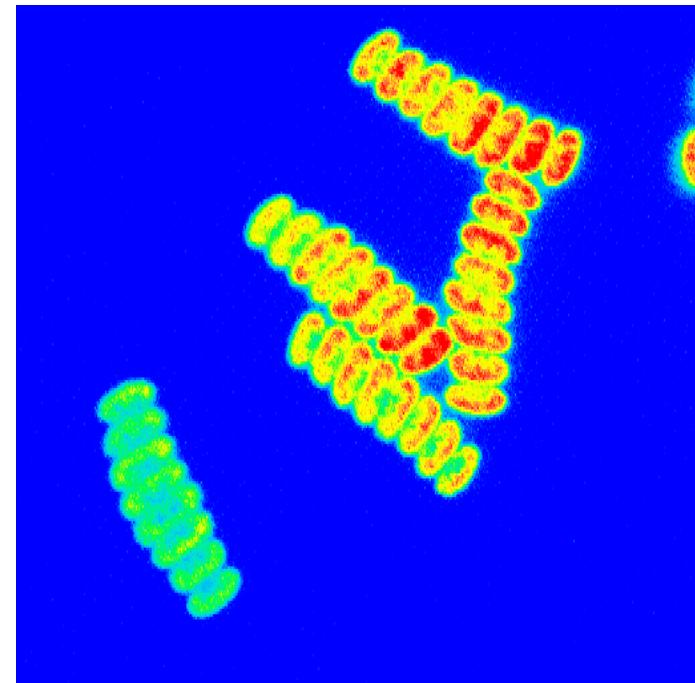
Cell cycle of single cells *Scenedesmus*

Time: 10 h



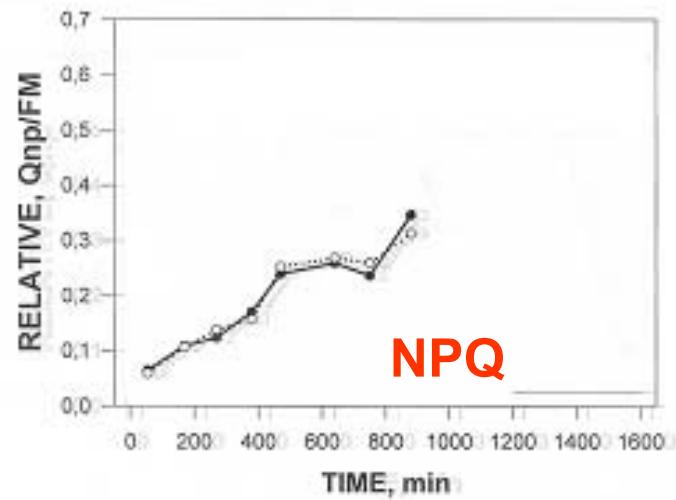
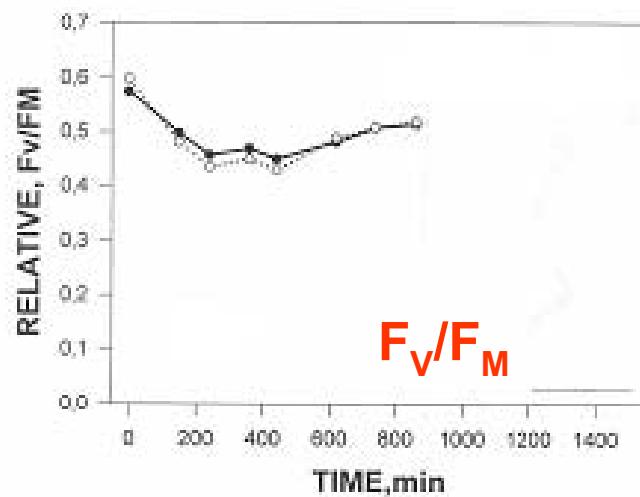
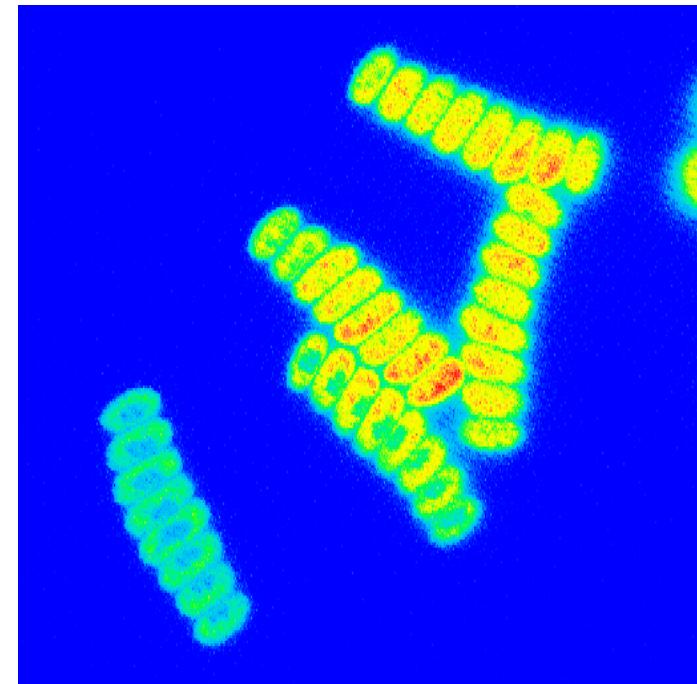
Cell cycle of single cells *Scenedesmus*

Time: 12 h



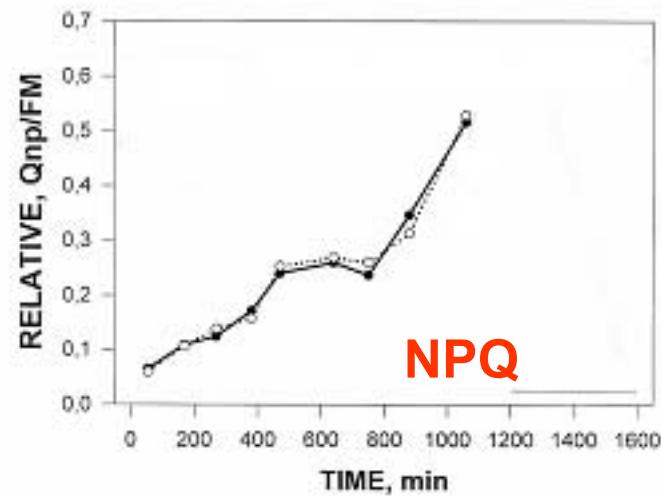
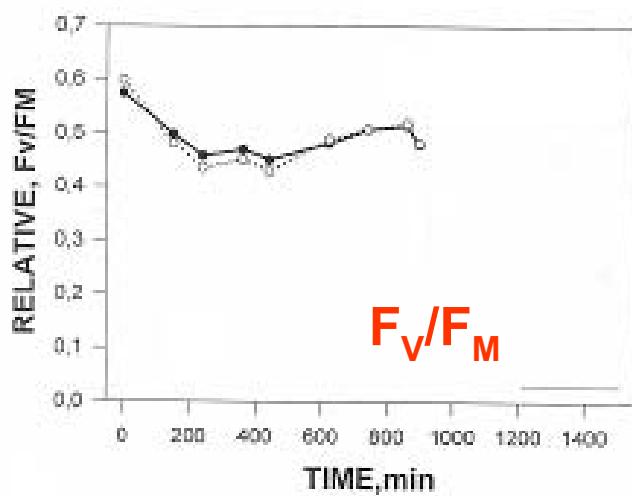
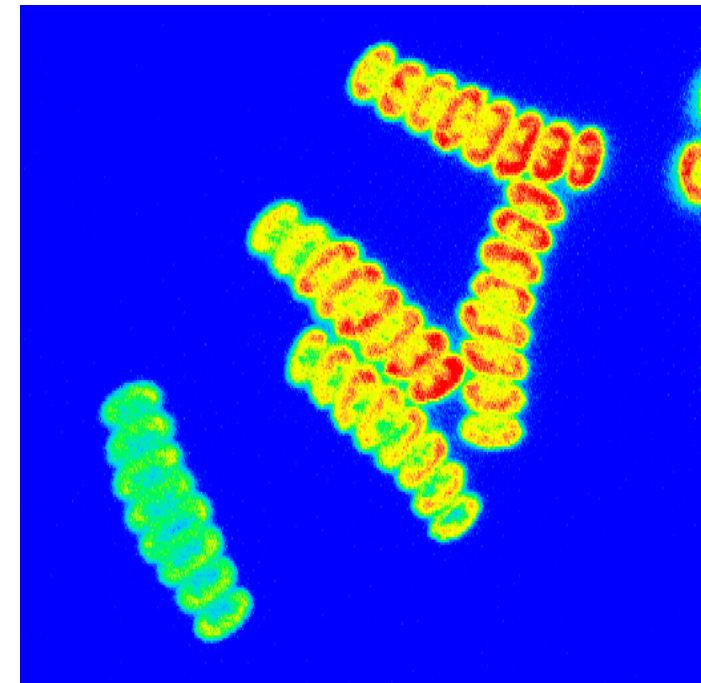
Cell cycle of single cells Scenedesmus

Time: 14 h



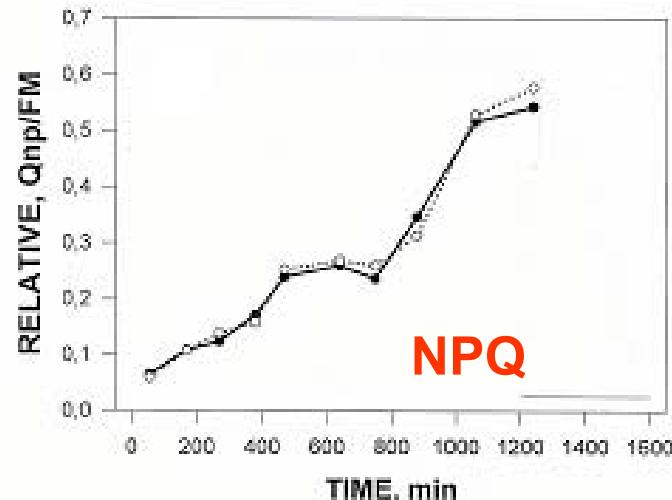
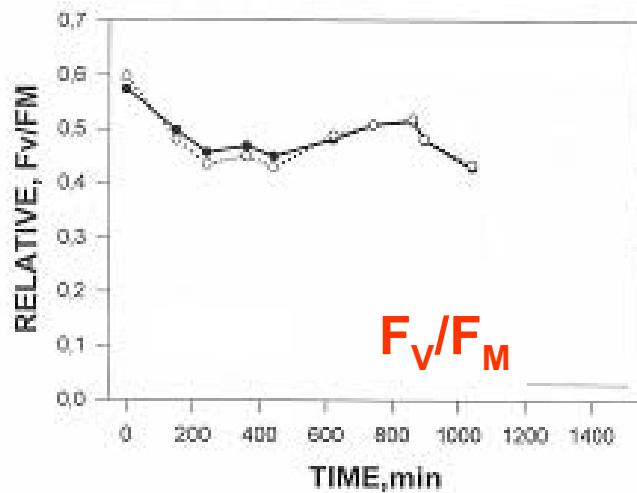
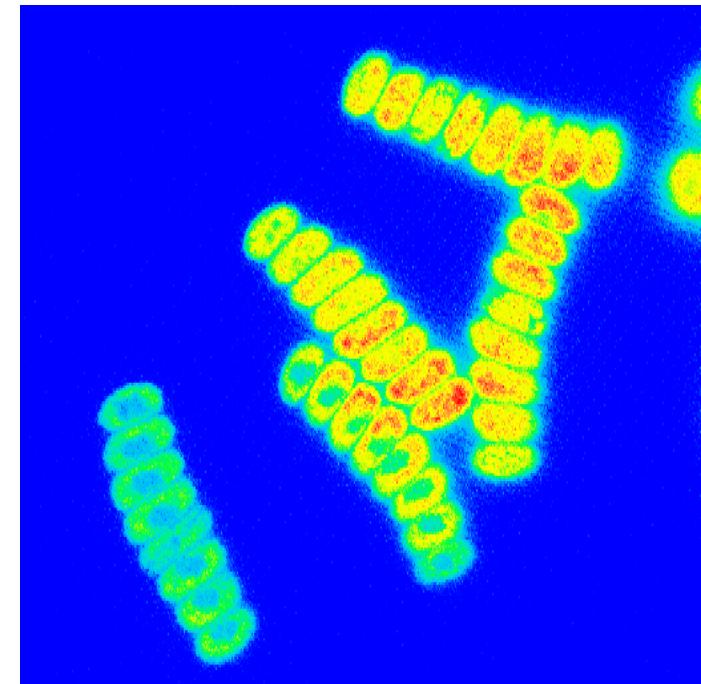
Cell cycle of single cells Scenedesmus

Time: 15 h



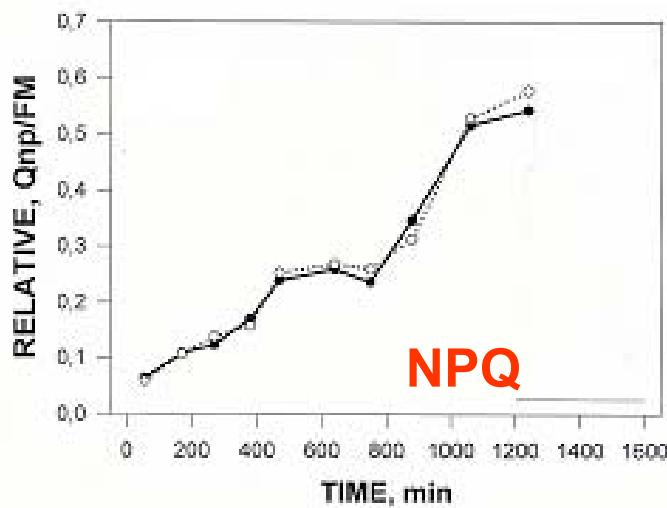
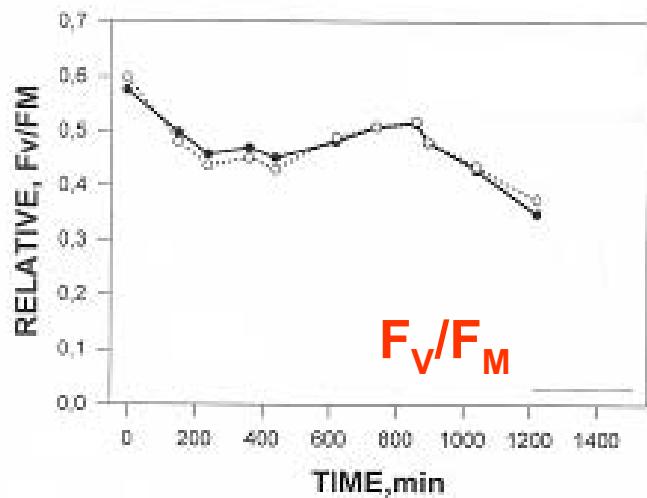
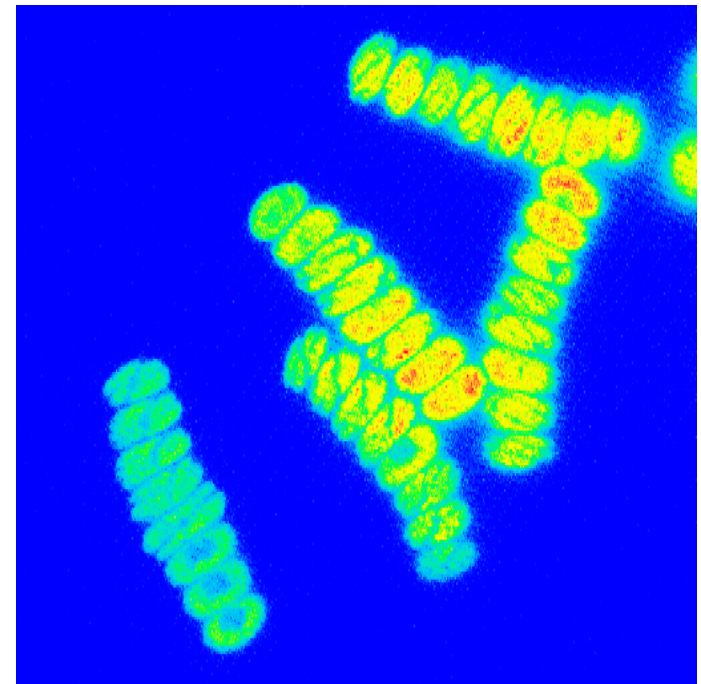
Cell cycle of single cells *Scenedesmus*

Time: 17 h



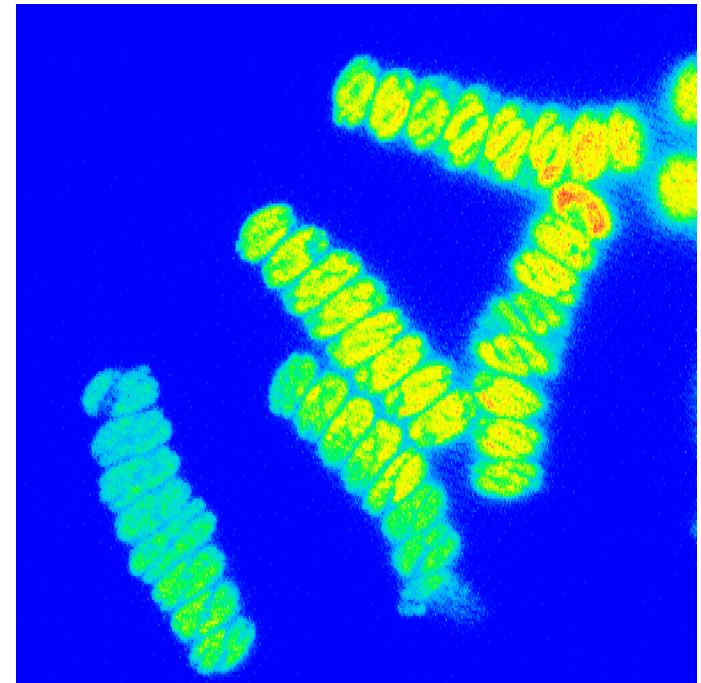
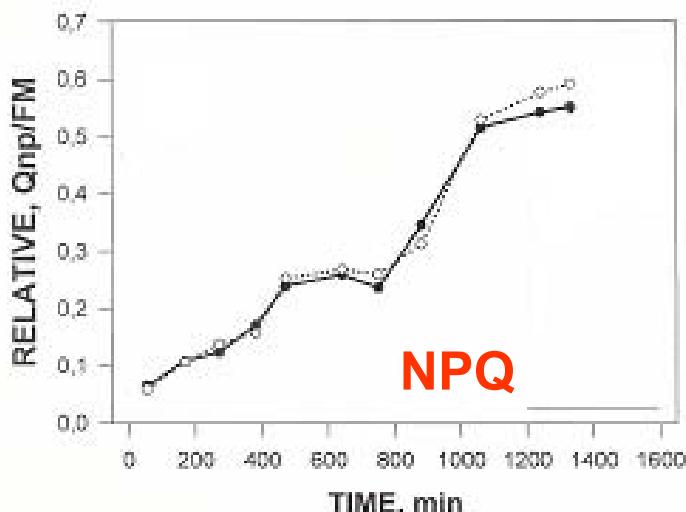
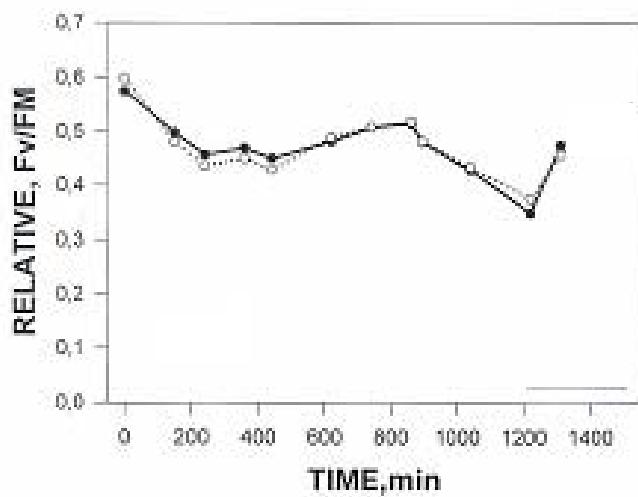
Cell cycle of single cells *Scenedesmus*

Time: 21 h



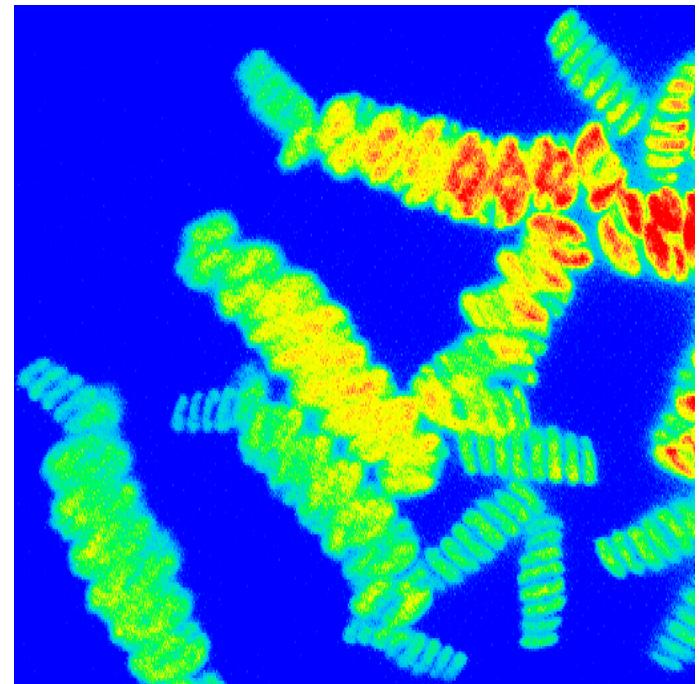
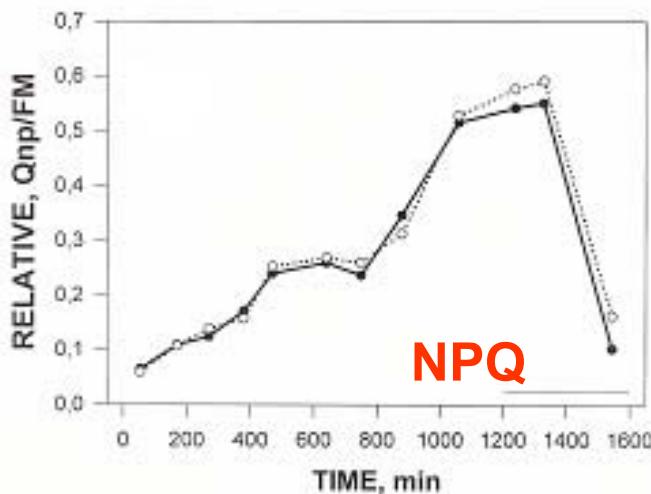
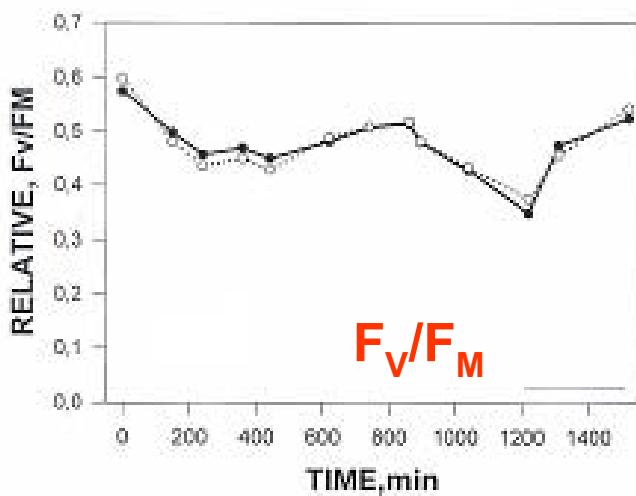
Cell cycle of single cells *Scenedesmus*

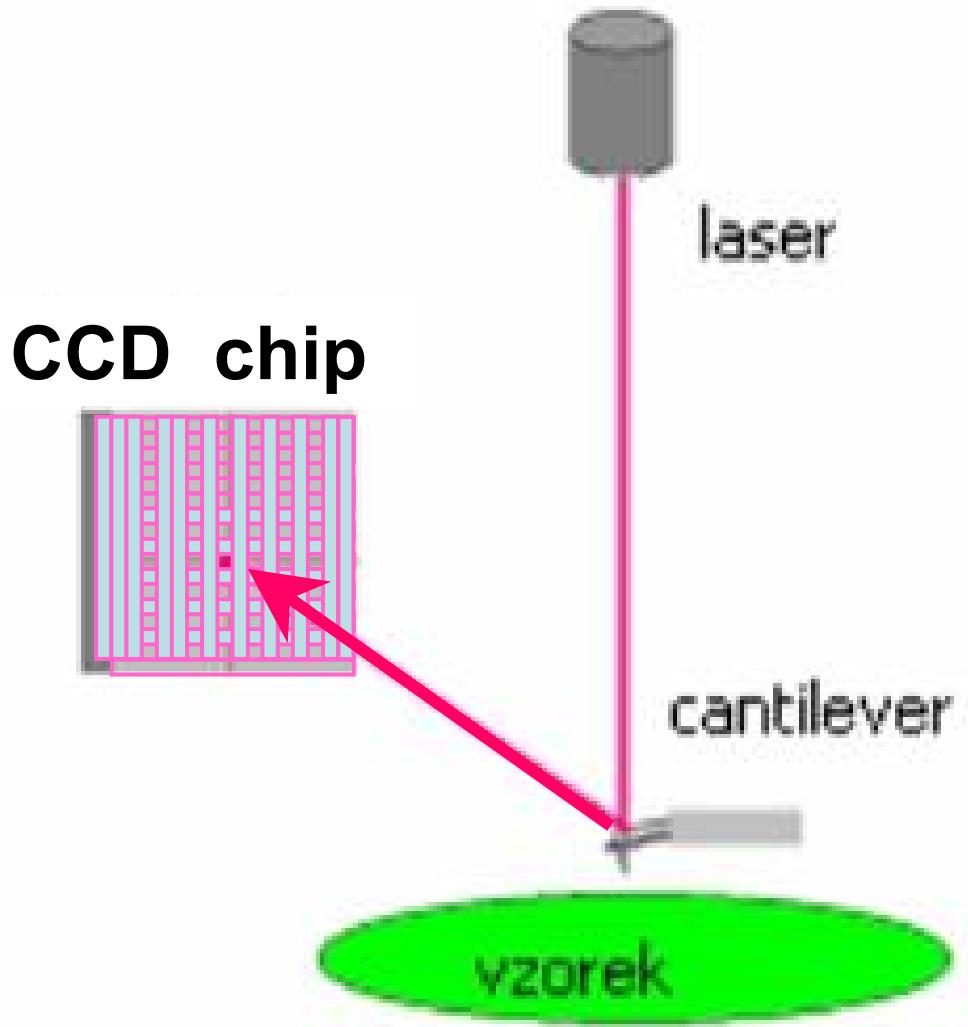
Time: 22 h



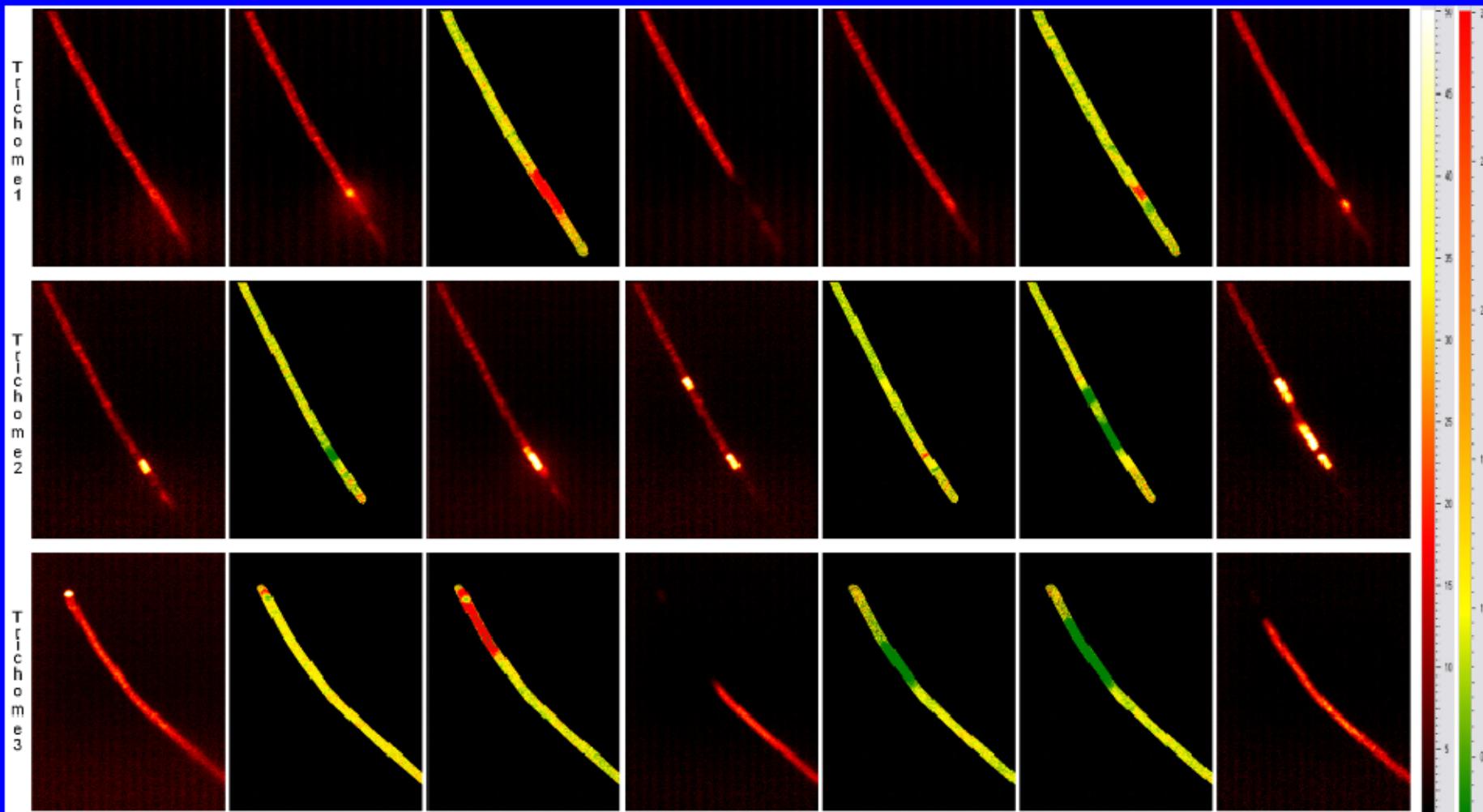
Cell cycle of single cells Scenedesmus

Time: 23 h





Unusual fluorescence kinetics during the diazotrophic period:
Traffic lights in *Trichodesmium*. Regulation of photosynthesis for
nitrogen fixation studied by chlorophyll fluorescence microscopy.

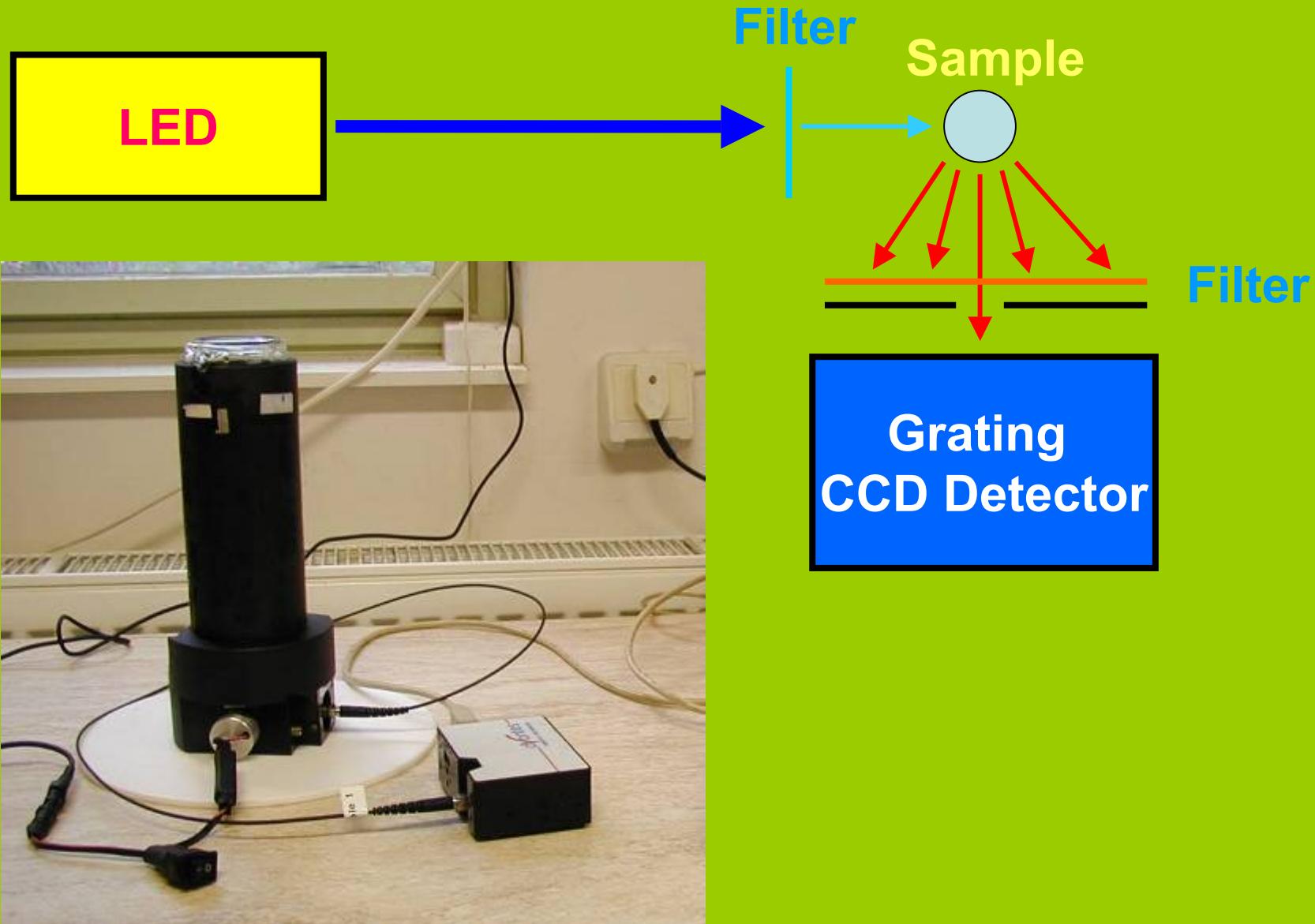


Hendrik Küpper, Naila Ferimazova, Ivan Šetlík and Ilana Berman-Frank

Plant Physiology, August 2004, Vol. 135, pp. 2120-2133

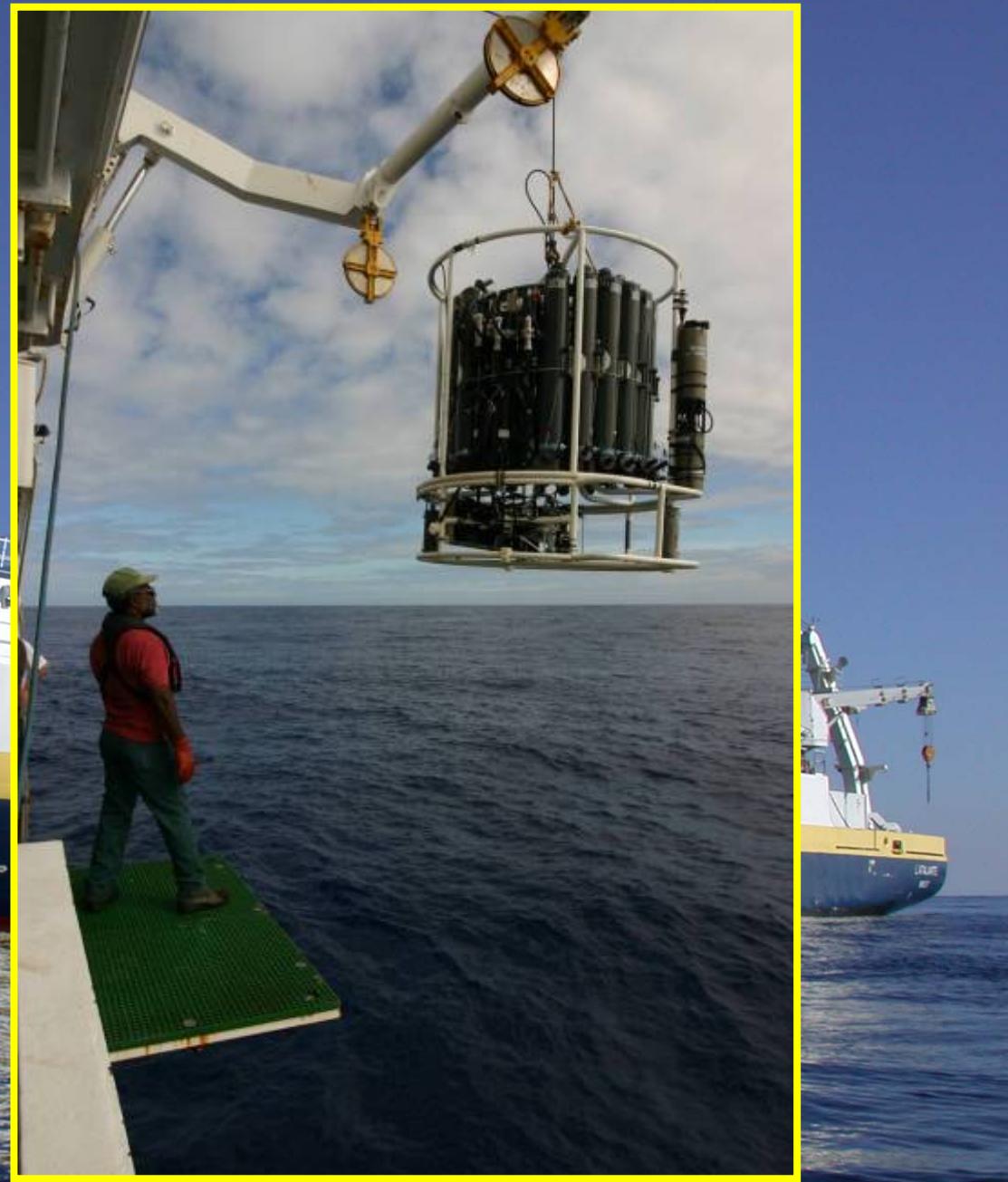


Portable 77 K fluorometer













SPG – obraz života v oceánech před cca 250 miliony let

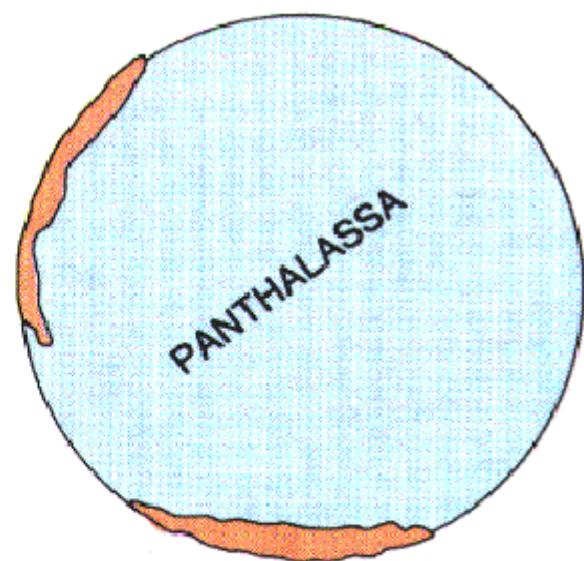
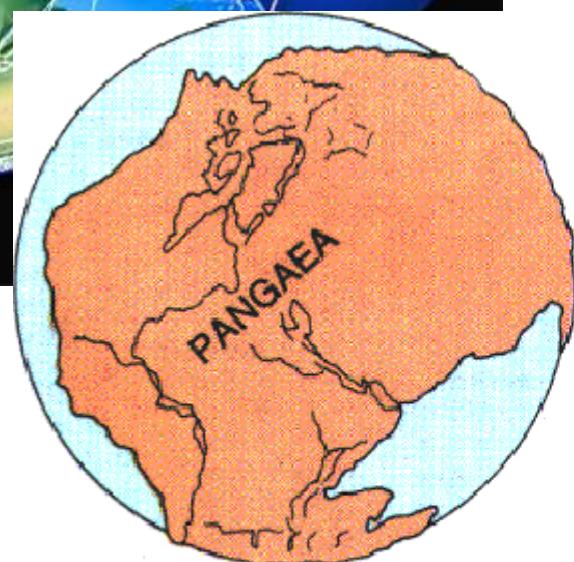
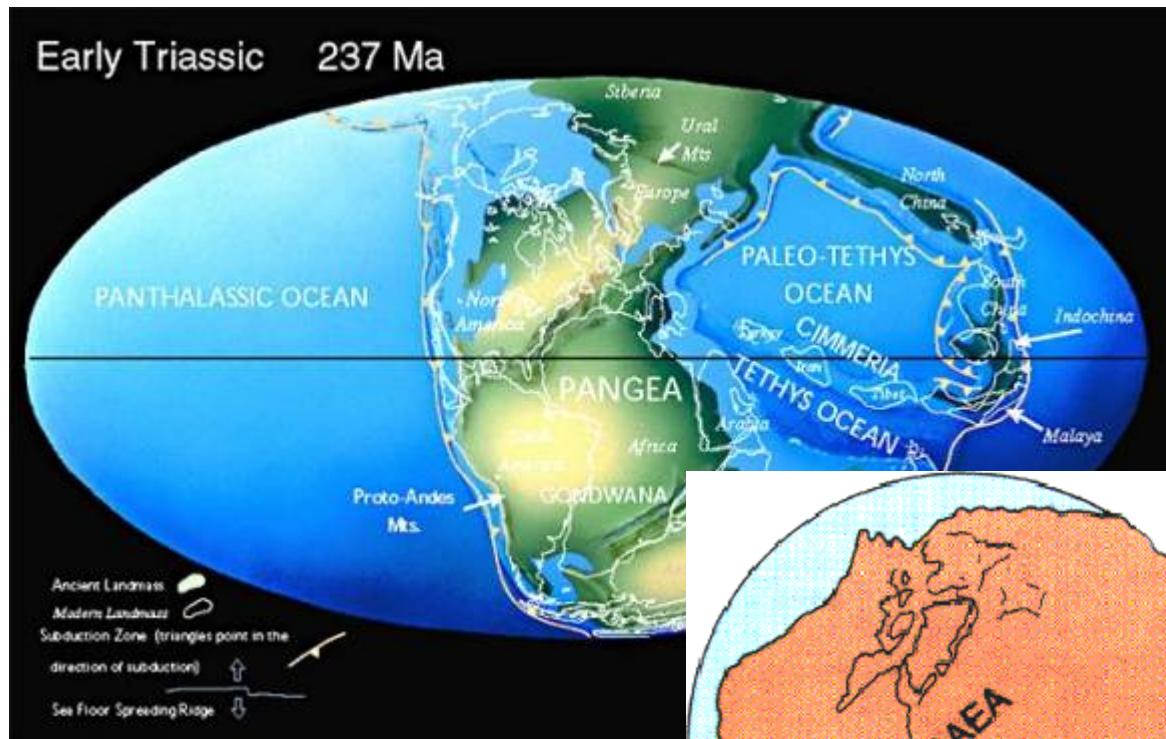
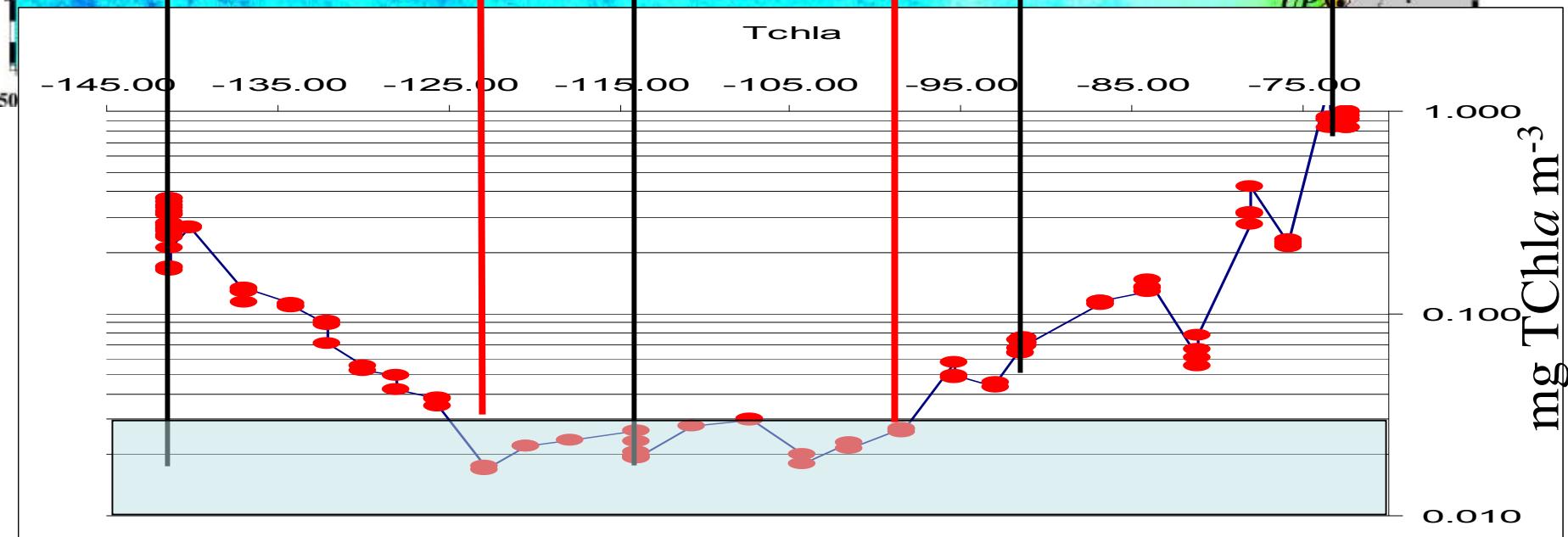
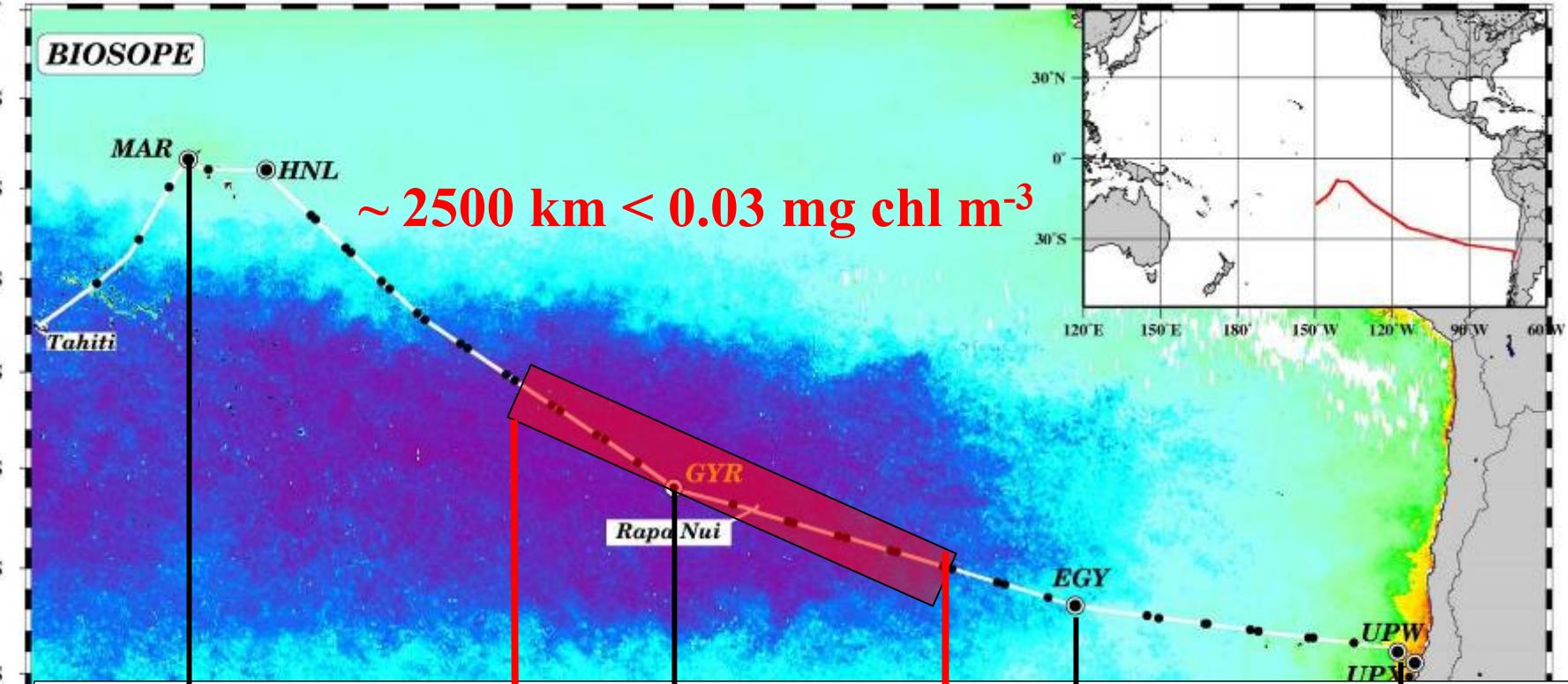


Figure 3: According to Wegener's theory only one "super-continent", called *Pangaea*, and one ocean, called *Panthalassa*, existed about 250 million years ago.

BIOSCOPE

Fotosyntéza v oceánských pouštích

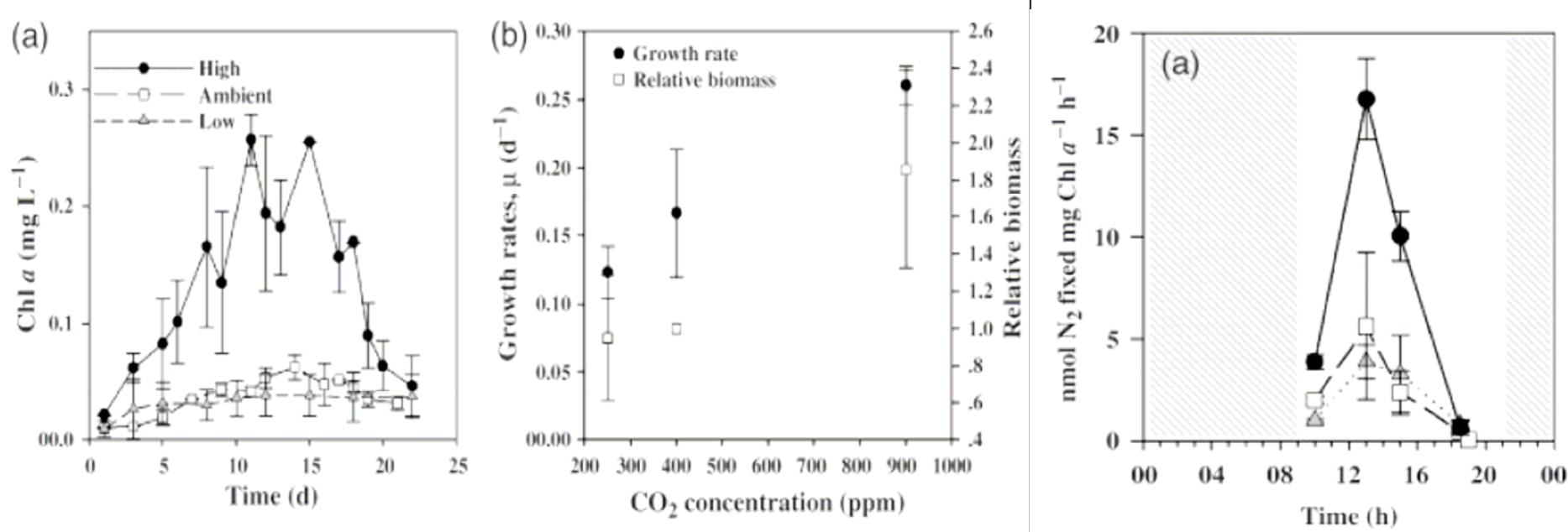
- Přítomnost fotoheterotrofních (anoxygenických) bakterií
- Fytoplankton se adaptoval na podmínky nedostatku N a Fe. Změna stoichiometrie fotosystémů, tvorba ATP. Vysoká fotochemická aktivita, ale nízká účinnost fixace uhlíku.
- Nedostatek Fe limituje fixaci N_2
- Společenstvo ve „slepé uličce“ především díky nepříznivým fyzikálním podmínkám

Elevated CO₂ enhances nitrogen fixation and growth in the marine cyanobacterium *Trichodesmium*

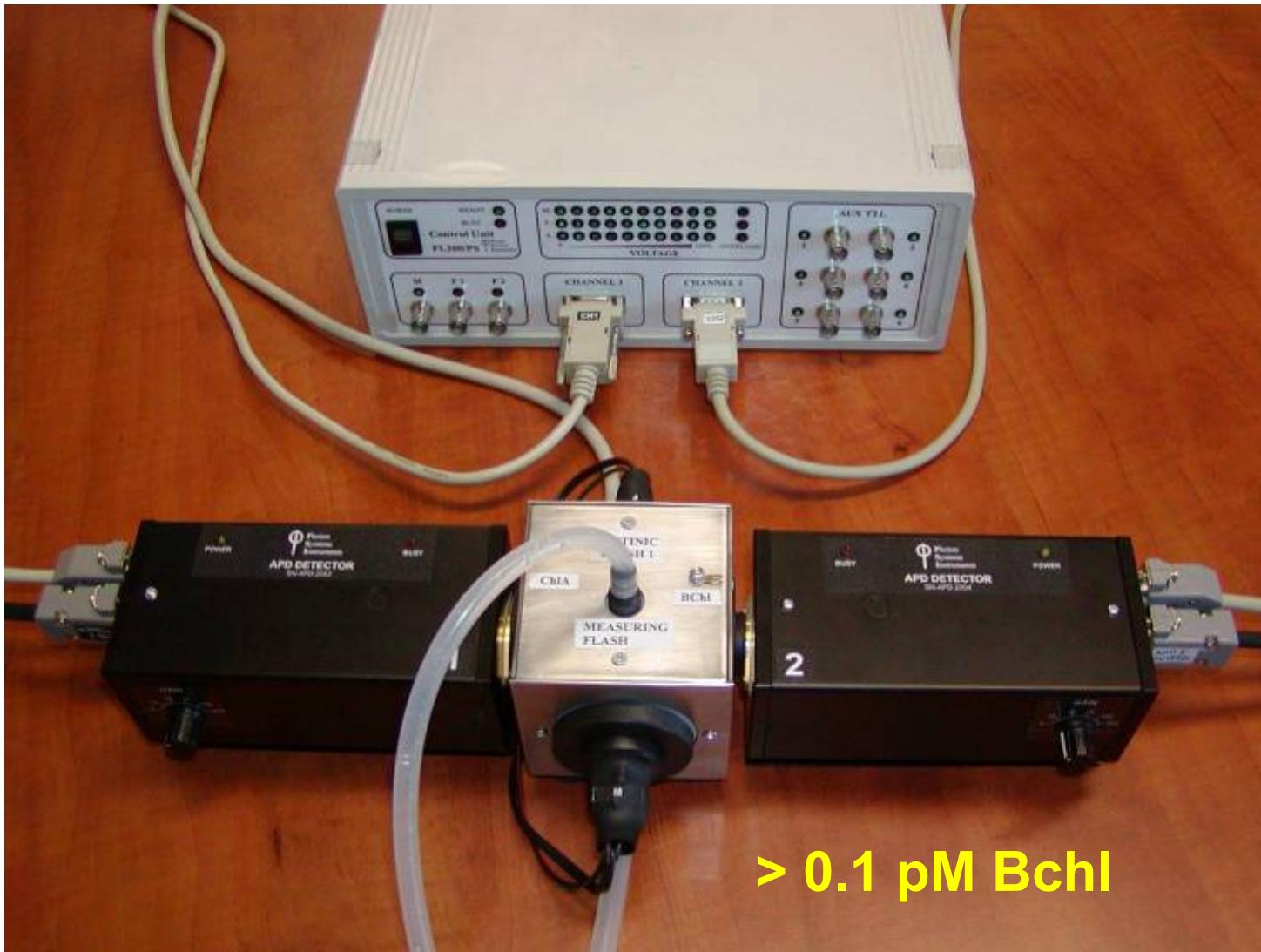
O.LEVITAN*, G. ROSENBERG*, I. SETLIK#, E. SETLIKOVA#, J. GRIGEL#, J. KLEPETAR#. O. PRASIL#, I. BERMAN-FRANK*

*Mina and Everard Goodman Faculty of Life Sciences, Bar Ilan University, Ramat-Gan, 52900 Israel

#Institute of Microbiology, MBU AVCR, Trebon & Institute of Physical Biology, University of South Bohemia, Nove Hrady, Czech Republic



Method: Infra-red kinetic fluorometer



M.Koblizek, J.Ston-Egiert, S. Sagan, Z.S. Kolber:
Diel changes in bacteriochlorophyll a concentration
suggest rapid bacterioplankton cycling in the Baltic
Sea. **FEMS Microbiology Ecology (2004)**





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EndNote

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Rapid growth rates of aerobic anoxygenic phototrophs in the ocean.

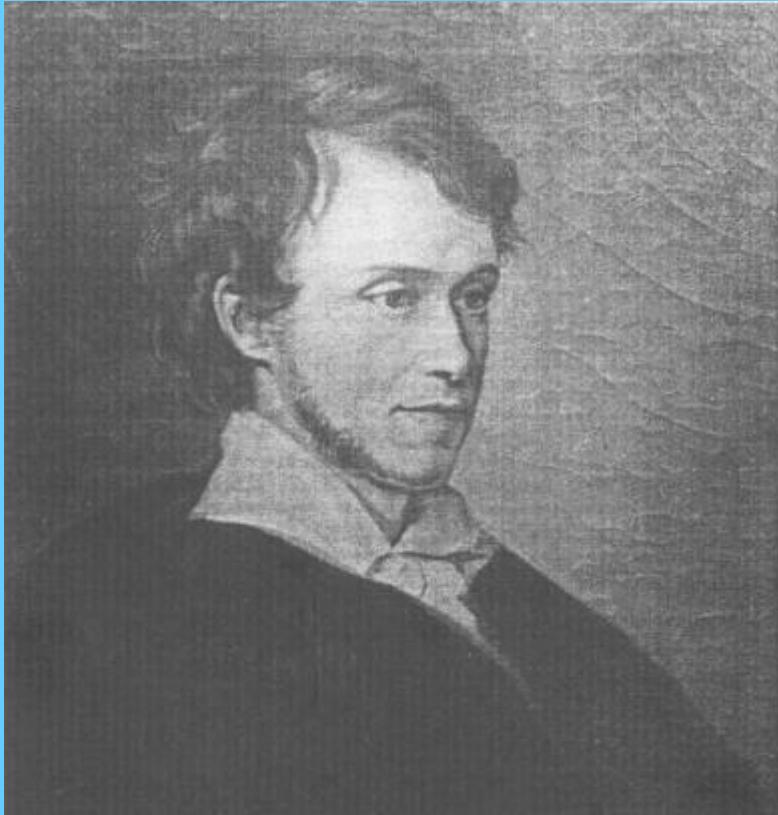
Koblížek M, Masin M, Ras J, Poulton AJ, Prásil O

Environ Microbiol 2007 Oct 9(10):2401-6 [abstract on PubMed] [citations on Google Scholar]

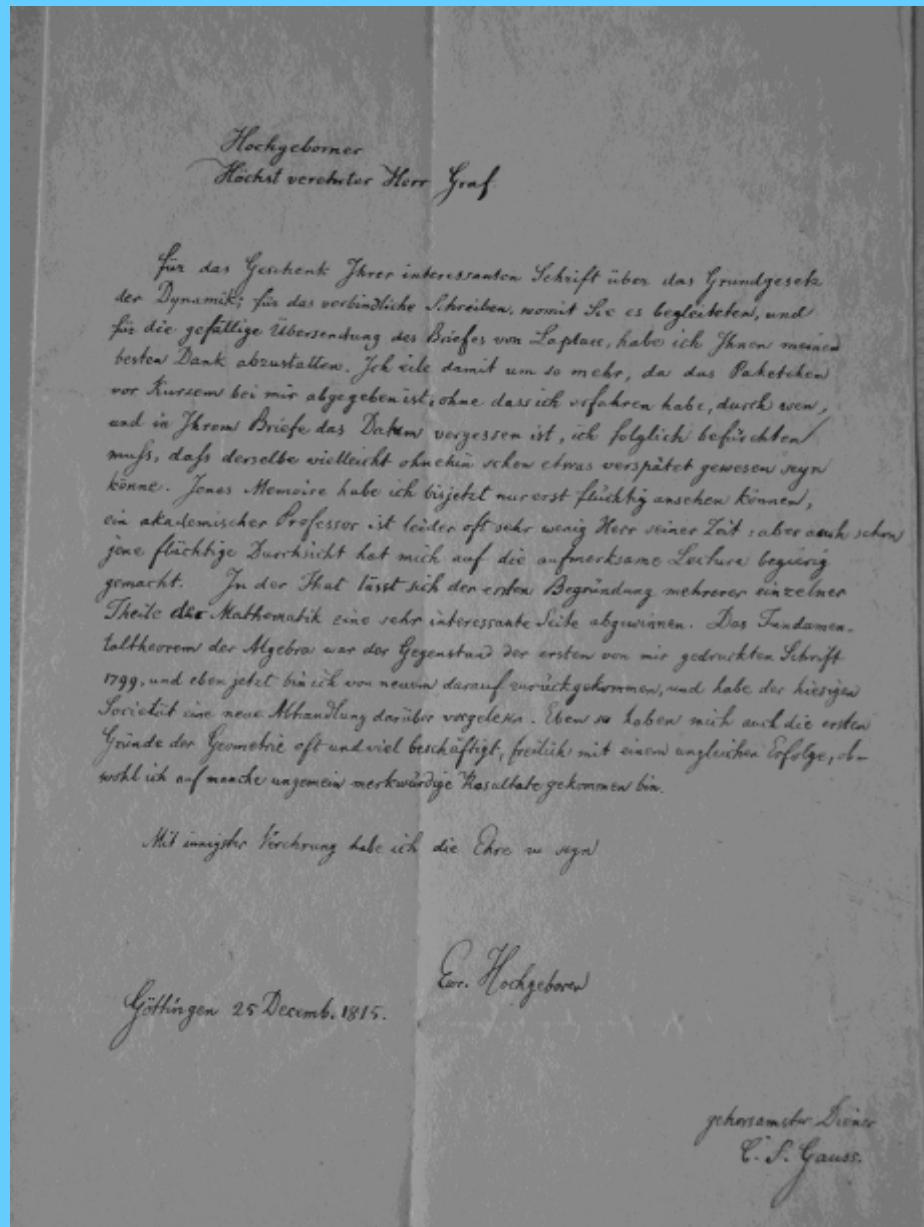
Selected by | David Kirchman

Evaluated 1 Oct 2007





Portrait of G.F. Buquoy



Letter from the German mathematician Gauss



HYALIT- černé sklo



zu definirenden werden, wenn das Instrument einheitlich ist, ganz auf die Wirkung; es ist gleichzeitig mit
dem ein violettes Bild hängt, ein gelbes
aber und weiß, wenn die Natriumwelle
die Doppel-Ausdehnbarkeit des Wassers zu be-
wirken glauben willigt in aber nicht unter Vors-
icht, jedoch hier aufzufinden interessant, weil
es zu unbeständig und dann verhindern kann
wieder nicht einmal gleichzeitig. Sie sind.

Der ist für die überraschende Größe, wenn
es ein ungemein unbeständiges Element in Form von
einer grünen Farbe, enthalten, die sehr fein
und so unbeständig, dass sie

zu Soddy

mein bester Dank
W. Goethe

17. Februar
J. A. Gay-Lussac
1813.

Letter from Goethe

laquelle est en raison inverse de celle qu'ils ont pour
l'hydrogène; ce qui caractérise bien avec leurs
propriétés électriques.

J'ai le journal de Schweizer dont vous me
parlez; je ne parle pas très habile
en Allemand, je le déchiffre cependant. Notre
confrérie de M. Gilbert, éditeur du journal
des Annales de physique, m'engage à vous
prier de mettre sa véritable adresse sur la
lettre de poche et de vouloir la lui faire
parvenir.

M. Arago est très sensible à votre souci;
il connaît les difficultés que vous m'avez
posées et lui communiquer.

Les chimistes de Paris seraient avec le plus grand
plaisir que les idées originales qui se trouvent
éparpillées dans plusieurs auteurs allemands
soient débarrassées de tout ce que les obscurités
et empêcheraient de les apprécier, mais la tâche est
trop pénible pour pouvoir quelque chose
de bon et aussi précieux, de l'entreprendre.

J'ai l'honneur d'être, Monsieur, avec
les sentiments les plus distingués, votre
très humble et très obéissant
serviteur. Gay-Lussac

Letter from Gay-Lussac