

# **ENGINEERING MECHANICS 2007**

**NATIONAL CONFERENCE  
WITH INTERNATIONAL PARTICIPATION  
MAY 14-17, 2007, SVRATKA, CZECH REPUBLIC**



## **PROGRAMME OF THE CONFERENCE**

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**Association for Engineering Mechanics**

**Institute of Solid Mechanics, Mechatronics and Biomechanics,  
Faculty of Mechanical Engineering, Technical University of Brno**

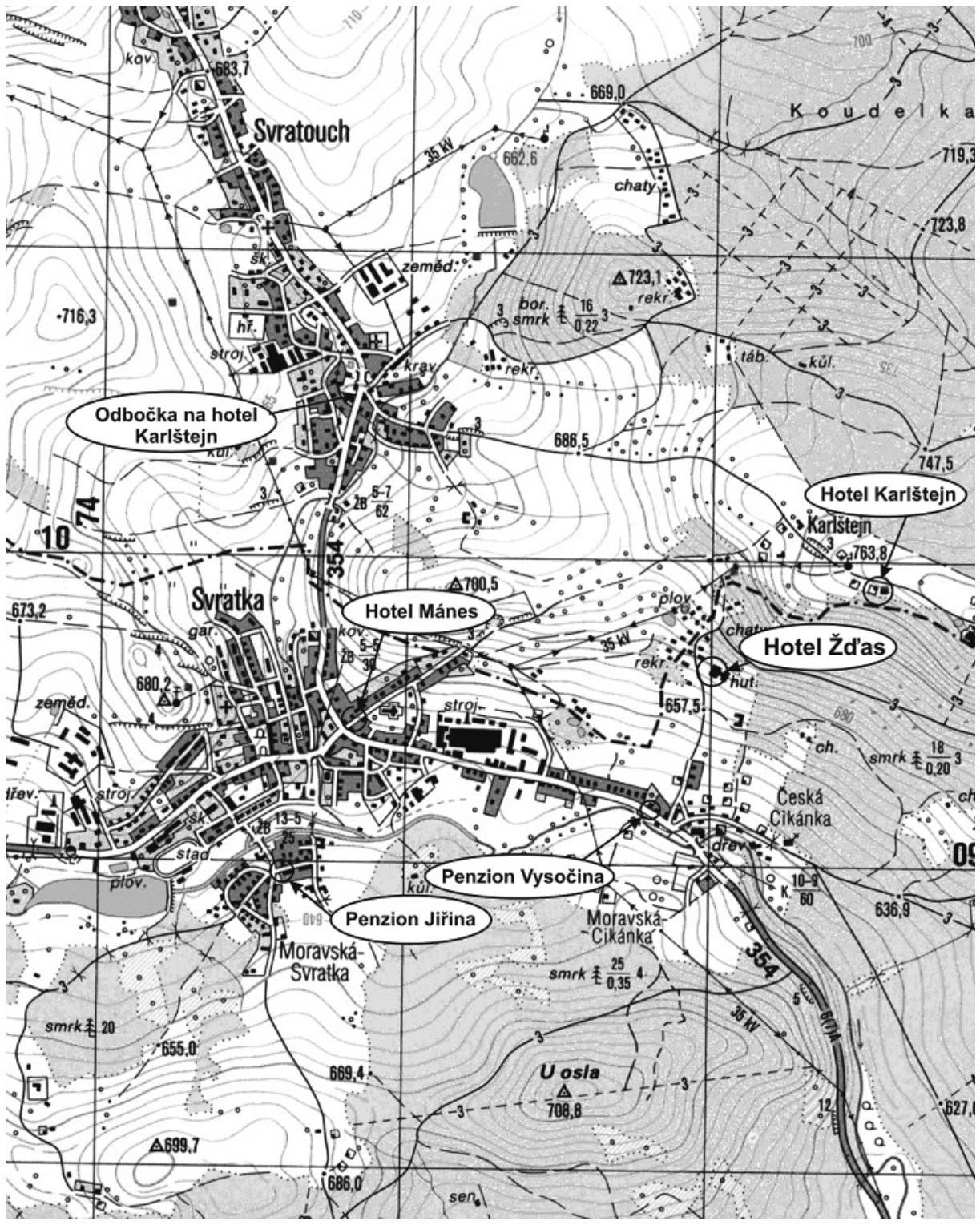
**Institute of Theoretical and Applied Mechanics,  
Academy of Sciences of the Czech Republic, v.v.i.**

**Institute of Thermomechanics,  
Academy of Sciences of the Czech Republic, v.v.i.**

**ŽDAS, a.s., Žďár nad Sázavou**

**Czech Society for Mechanics**

**Engineering Academy of the Czech Republic**



# TABLE OF CONTENTS

|  |    |
|--|----|
| <b>1. General Information</b> .....              | 4  |
| <b>2. Scientific Information</b> .....           | 6  |
| <b>3. Conference Timetable</b> .....             | 8  |
| <b>4. Programme of the Presentations</b> .....   | 10 |
| 4.1. Lecture Hall I - Detailed Programme .....   | 11 |
| 4.2. Lecture Hall II - Detailed Programme .....  | 17 |
| 4.3. Lecture Hall III - Detailed Programme ..... | 23 |
| 4.4. Lecture Hall IV - Detailed Programme .....  | 29 |
| 4.5. Lecture Hall V - Detailed Programme .....   | 35 |
| <b>5. List of Papers</b> .....                   | 44 |
| <b>6. Author Index</b> .....                     | 54 |

## HONORARY COMMITTEE

Miroslav Šabart

Managing Director of the ŽĎAS, a.s.

Boris Jakubík

Mayor of Svratka

## SCIENTIFIC COMMITTEE

|                  |  |                              |
|------------------|--|------------------------------|
| <b>chairman:</b> | <b>Igor Zolotarev, PhD</b>             | <b>IT ASCR, Prague</b>       |
| <b>members:</b>  | <b>Ivan Dobiáš, DSc</b>                | <b>IT ASCR, Prague</b>       |
|                  | <b>Assoc. Prof. Miloš Drdácký, DSc</b> | <b>ITAM ASCR, Prague</b>     |
|                  | <b>Michael Formánek, MSc</b>           | <b>ŽĎAS, a.s., Žďár n.S.</b> |
|                  | <b>Jaromír Horáček, DSc</b>            | <b>IT ASCR, Prague</b>       |
|                  | <b>Prof. Přemysl Janíček, DSc</b>      | <b>ISMMB FME, TU, Brno</b>   |
|                  | <b>Assoc. Prof. Zbyněk Jaňour, DSc</b> | <b>IT ASCR, Prague</b>       |
|                  | <b>Prof. Ctirad Kratochvíl, DSc</b>    | <b>ISMMB FME, TU, Brno</b>   |
|                  | <b>Pavel Lamač, MSc</b>                | <b>ŽĎAS, a.s., Žďár n.S.</b> |
|                  | <b>Jiří Minster, DSc</b>               | <b>ITAM ASCR, Prague</b>     |
|                  | <b>Jiří Náprstek, DSc</b>              | <b>ITAM ASCR, Prague</b>     |
|                  | <b>Ladislav Půst, DSc</b>              | <b>IT ASCR, Prague</b>       |
|                  | <b>Prof. Jaromír Příhoda, PhD</b>      | <b>IT ASCR, Prague</b>       |
|                  | <b>Prof. Jan Vrbka, DSc, RNDr</b>      | <b>TU, Brno</b>              |

# 1. GENERAL INFORMATION

## VENUE

The EM2007 Conference is held in the hotel ŽĎAS. **Address :**

**Hotel ŽĎAS**  
592 02 Svratka  
Czech Republic  
[www.oxygen.cz/svratka](http://www.oxygen.cz/svratka)

**hotel reception and registration desk:**  
Tel. : +420-566 662 611  
Fax : +420-566 662 418  
e-mail: [hotel.svratka@iol.cz](mailto:hotel.svratka@iol.cz)

## ACCOMMODATION

Accommodation has been reserved in the hotel ŽĎAS. As the number of participants is very high, places in other near hotels have also been reserved, see the map. **For information regarding your individual reservation, please contact kindly the reception of the hotel ŽĎAS immediately after your arrival at Svratka. Breakfast is served for all participants (wherever accommodated) in the hotel ŽĎAS only (6:45-8:00 a.m.)**

|                             |  |   |
|-----------------------------|--|---|
| • <b>hotel ŽĎAS</b>         | see above  | manager: Mr. František Pokorný<br>mobil: +420-602 705 412 |
| • <b>hotel Karlštejn</b>    | 539 49 Svratouch<br>tel., fax. : +420-566 662 607        | manager: Mr. Vambera<br>mobil: +420-602 529 361           |
| • <b>Penzion „Martinec“</b> | area of the hotel ŽĎAS                                   | manager: Mr. Martinec<br>mobil: +420-606 889 714          |
| • <b>Penzion „Vysočina“</b> | Plaňava 182<br>592 02 Svratka<br>tel. : +420-566 662 354 | manager: Mrs. Vlasta Peňázová<br>mobil: +420-605 826 563  |

## E-MAIL SERVICES

During the whole Conference E-Mail services will be available for sending of short messages. Four PCs will be at disposal to the participants in the hotel lobby. The address:

**IM2007@zdas.cz**

Sending E-mail message to the above address, do not forget to indicate the name of a recipient in SUBJECT. Messages will be fixed in a printed form at the poster **MESSAGES** in the hotel lobby.

In the same time, the PCs above will be able to browse among the EM2007 CD ROM and to read the full text version of papers.

## TRANSPORTATION

**Transportation from Žďár nad Sázavou to Svatka and back (travel time 30 min.):**

- A special coach to Svatka (hotel ŽĎAS - Conference venue) will be leaving Žďár nad Sázavou (bus station in front of the railway station) at 14:50 on 14 May (Monday) 2007.
- A special coach to Žďár nad Sázavou (bus & railway station) will be leaving Svatka (hotel ŽĎAS) at 13:45 on 17 May (Thursday) 2007.

**A special van with label of the conference will be operating between the hotel ŽĎAS and other hotels (see above) where participants are accommodated during the whole EM2007 Conference.**

A public bus is operating between Žďár nad Sázavou (bus & railway station) and Svatka (main bus stop at Svatka), fare CZK 32,-. Weekdays:

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|                   |   |      |       |       |       |       |       |       |
|-------------------|---|------|-------|-------|-------|-------|-------|-------|
| Žďár nad Sázavou: | ↓ | 8:00 | 10:05 | 11:15 | 13:00 | 14:45 | 16:10 | 18:15 |
| Svatka:           | ↓ | 8:45 | 10:50 | 12:00 | 13:45 | 15:30 | 16:55 | 19:00 |
| Svatka:           | ↓ | 6:30 | 7:10  | 9:15  | 12:40 | 13:55 | 15:50 | 17:15 |
| Žďár nad Sázavou: | ↓ | 7:15 | 7:55  | 10:00 | 13:25 | 14:40 | 16:35 | 18:00 |

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## OFFICIAL LANGUAGE

The official languages of the conference are Czech, Slovak and English. No simultaneous translation is provided.

## CONFERENCE REGISTRATION

The Registration Desk of the EM2007 Conference is located in the lobby of the hotel ŽĎAS. It is open from 12:00 to 19:00 on Monday 14 May 2007, from 7:30 to 18:00 on Tuesday and from 7:30 to 12:00 on Wednesday and Thursday. Accommodation is provided by the hotel ŽĎAS reception. For information regarding other hotel ŽĎAS services, please contact hotel reception (swimming pool, golf concourse, etc.).

## BOARDING

Lunches and Dinners are served in the restaurant of the hotel ŽĎAS (Breakfast 6:45-8:00; Lunches 12:00- 14:00; Dinners 19:00-20:30). As the capacity of the restaurant is limited it is recommended to eat in two groups. The visible conference badge is a sign for the staff to serve you.

## REFRESHMENT

Coffee, mineral water and other refreshment are available in the bar of the hotel ŽĎAS (9:40 – 24:00) and in Wine Cellar (20:00 – 24:00).

## BADGES

The participants are kindly requested to wear their badges during the conference to be admitted to scientific sessions, breakfasts, lunches, dinners, transportation and other services.

## INSURANCE

The Programme Committee is not responsible for the health problems of the participants nor for losses. The visitors from abroad are recommended to take out insurance in the country of their origin.

## 2. SCIENTIFIC INFORMATION

The **ENGINEERING MECHANICS 2007** - National Conference with International Participation continues in the tradition of the fruitful meetings which have been held in Svratka for many years.

The Programme Committee chose 163 papers for the presentation (144 lectures and 19 posters) at the conference while the keynote speakers were invited to cover the particular subjects of the engineering mechanics. All accepted papers are published in Conference Proceedings consisting of two parts:

- The Book of Extended Abstracts, printed by Ediční středisko ČVUT, Prague, including about 350 pgs.
- CD ROM containing Full Text version as well as Extended Abstracts of papers. CD ROM has been made by EXIMPO a.s.

For every corresponding author 5 off-prints of his extended abstracts are available at the Registration Desk. Feel free to make some arbitrary number of additional copies.

### LECTURES

The conference includes the keynote lectures (plenary session) and parallel sessions in the **Lecture Halls I, II, III, IV, V** located in main building of the hotel ŽĎAS. The popular names of these halls, mostly used in the past, are: **Conference Room - L.H. I** (next-door the Restaurant), **Coffee Bar-L.H. II** (behind the Restaurant), **TV Club - L.H. III**, **Wine Cellar - L.H. IV**, **Fitness Centre- L.H. V** (next door the Wine Cellar).

The presentation of a keynote lecture lasts 40 minutes while that one of a normal lecture 20 minutes including the discussion. The Chairmen of scientific sessions are responsible for keeping the timetable. The presenting authors are kindly asked to contact their Section Chairman 10 minutes before starting of the session and to check functionality of their presentation.

The data projector (1024\*768) with PC and overhead projector are available in all lecture halls as a standard. Videorecorder and slide projector (50 x 50 mm) are at disposal at request with preference of those who claimed these devices in the Registration Form. A technician will assist in each of the lecture halls during the whole Conference.

### POSTER SESSION

For the poster session the area in **Class Rooms** (basement of the hotel ŽĎAS living part) is reserved starting Tuesday 8.00. This area is accessible via staircase in a living part of the hotel. For every paper announced for the poster session a particular panel of 1m\*1m is reserved. Presenting authors are entitled to mount their posters since Tuesday 8:00. Some fixing material will be available at the place and at the registration desk.

All of the posters exhibited at the Conference will be accepted into the competition for the **Prize of the Managing Director of the ŽĎAS Company**.

The special committee – under chairmanship of Mr. Ivan Trajtel', MSc., technical director of the ŽĎAS company – will conclude the assessment of the posters exhibited on Wednesday at 13:30. The winners of the competition will be announced and awarded on Wednesday evening at 19:00 before the Conference Dinner. The authors are asked to dismount kindly their posters during Thursday morning at the latest.

### VARIATIONS

The Scientific Committee is entitled to vary the programme if necessary for scientific or technical reasons. If a speaker is missing in the planned time the next speakers take the order and the break after that particular session will be longer.

## TECHNICAL EXHIBITIONS

The experimental equipments, instruments, hardware and software relating to engineering mechanics are exposed in the lobby of the hotel ŽDAS.

## MEETING OF THE SCIENTIFIC COMMITTEE

The members of the Scientific Committee are invited to a working meeting (Tuesday 15 May, 14:00 – 16:00, Meeting room). The results of the meeting will be announced at the plenary session during the Closing Ceremony, on Thursday 17 May 2007 at 12:10 – 12:20.

## CONTACT ADDRESS OF THE ENGINEERING MECHANICS 2007 (not during the conference)

|  |   |
|--|---|
| <b>Igor Zolotarev, PhD.</b>              | <a href="http://www.it.cas.cz/IM2007">http://www.it.cas.cz/IM2007</a> |
| <b>Institute of Thermomechanics ASCR</b> | <b>E-mail: im2007@it.cas.cz</b>                                       |
| <b>Dolejšková 5,</b>                     | <b>tel.: +420 266 053 149 (I.Zolotarev),</b>                          |
| <b>182 00 Prague 8</b>                   | <b>+420 266 053 145 (E.Koubová)</b>                                   |
| <b>Czech Republic</b>                    | <b>fax: +420 266 053 149</b>  |

## LIST OF SECTIONS

| <b>Section</b>                   | <b>Abbreviation</b> | <b>Lecture Hall</b>                                    |
|----------------------------------|---------------------|--|
| <b>Keynote Lectures</b>          | <b>KEY</b>          | <b>Lecture Hall I - Conference Room</b>                |
| <b>Mechanics of Solids</b>       | <b>SOL</b>          | <b>Lecture Hall I - Conference Room</b>                |
| <b>Dynamics</b>                  | <b>DYN</b>          | <b>Lecture Hall II - Coffee Bar</b>                    |
| <b>Fracture Mechanics</b>        | <b>FRA</b>          | <b>Lecture Hall III - TV Club</b>                      |
| <b>Reliability of Structures</b> | <b>REL</b>          |  |
| <b>Mechatronics</b>              | <b>MCT</b>          | <b>Lecture Hall IV - Wine Cellar</b>                   |
| <b>Biomechanics</b>              | <b>BIO</b>          |  |
| <b>Thermodynamics</b>            | <b>TER</b>          | <b>Lecture Hall V - Fitness Centre</b>                 |
| <b>Fluid Mechanics</b>           | <b>FLU</b>          |  |
| <b>Poster Session</b>            | <b>POS</b>          | <b>Class Rooms - basement of the hotel living part</b> |

### 3. CONFERENCE TIMETABLE

| <i>Monday – 14 May 2007</i> |                              |
|-----------------------------|------------------------------|
|                             | Hotel lobby                  |
| 12:00 - 19:00               | Registration of participants |
| Plenary session             | Restaurant                   |
|                             | Opening ceremony             |
|                             | Keynote lectures             |
| 16:00 - 16:30               |                              |
| 16:30 - 18:30               |                              |
| 19:00                       | Dinner - Restaurant          |

| <i>Tuesday - 15 May 2007</i>       |                                      |              |               |              |             |  |
|------------------------------------|--------------------------------------|--------------|---------------|--------------|-------------|--|
| Parallel sessions<br>8:00 - 9:40   | Lect.Hall I                          | Lect.Hall II | Lect.Hall III | Lect.Hall IV | Lect.Hall V | Hotel lobby  |
|                                    | <b>SOL</b>                           | <b>DYN</b>   | <b>FRA</b>    | <b>MCT</b>   | <b>TER</b>  | Registration of Participants (Hotel lobby)                       |
| 9:40 - 10:20                       | Coffee Break                         |              |               |              |             |  |
| Parallel sessions<br>10:20 - 12:00 | Lect.Hall I                          | Lect.Hall II | Lect.Hall III | Lect.Hall IV | Lect.Hall V |  |
|                                    | <b>SOL</b>                           | <b>DYN</b>   | <b>FRA</b>    | <b>MCT</b>   | <b>TER</b>  |  |
| 12:00 - 14:00                      | Lunch - Restaurant                   |              |               |              |             | 13:00 - 14:00  |
| Parallel sessions<br>14:00 - 15:40 | Lect.Hall I                          | Lect.Hall II | Lect.Hall III | Lect.Hall IV | Lect.Hall V | Technical Exhibitions (Hotel lobby)                              |
|                                    | <b>SOL</b>                           | <b>DYN</b>   | <b>FRA</b>    | <b>MCT</b>   | <b>TER</b>  |  |
| 15:40 - 16:20                      | Coffee Break                         |              |               |              |             | 8:00 - 18:00   |
| Parallel sessions<br>16:20 - 18:20 | Lect.Hall I                          | Lect.Hall II | Lect.Hall III | Lect.Hall IV | Lect.Hall V | Poster Session (Class Rooms – basement of the hotel living part) |
|                                    | <b>SOL</b>                           | <b>DYN</b>   |               | <b>BIO</b>   | <b>FLU</b>  |  |
| 19:00                              | Dinner - Restaurant                  |              |               |              |             |  |
|                                    | Lecture Hall I                       |              |               |              |             |  |
| 19:30                              | Ing. P. Sedlák: Golf - sport for you |              |               |              |             |  |



| <b>Wednesday – 16 May 2007</b>  |             |              |               |              |             |  |
|---|-------------|--------------|---------------|--------------|-------------|--|
| Parallel sessions<br>8:00 - 9:40  | Lect.Hall I | Lect.Hall II | Lect.Hall III | Lect.Hall IV | Lect.Hall V | Hotel lobby  |
|   | <b>SOL</b>  | <b>DYN</b>   |               | <b>BIO</b>   | <b>FLU</b>  | Registration of Participants (Hotel lobby)                                       |
| 9:40 - 10:20 Coffee Break   |             |              |               |              |             |  |
| Parallel sessions<br>10:20 - 12:00  | Lect:Hall I | Lect:Hall II | Lect:Hall III | Lect:Hall IV | Lect:Hall V | 8:00 - 18:00<br>Poster Session (Class Rooms – basement of the hotel living part) |
|   | <b>SOL</b>  | <b>DYN</b>   |               |              | <b>FLU</b>  |  |
| 12:00 - 14:00 Lunch - Restaurant  |             |              |               |              |             | 8:00 - 18:00   |
| 14:00 - 19:00 Free time   |             |              |               |              |             |  |
| 19:00 - 24:00 Conference Dinner - Restaurant ;<br>19:00 Announcement of the Poster Session winner |             |              |               |              |             |  |

| <b>Thursday - 17 May 2007</b>      |                                       |              |               |              |             |  |
|------------------------------------|---------------------------------------|--------------|---------------|--------------|-------------|--|
| Parallel sessions<br>8:00 - 9:40   | Lect:Hall I                           | Lect:Hall II | Lect:Hall III | Lect:Hall IV | Lect:Hall V | Hotel lobby                                |
|                                    | <b>SOL</b>                            |              |               |              | <b>FLU</b>  | Registration of Participants (Hotel lobby) |
| 9:40 - 10:20 Coffee Break          |                                       |              |               |              |             |  |
| Parallel sessions<br>10:20 - 12:00 | Lect:Hall I                           | Lect:Hall II | Lect:Hall III | Lect:Hall IV | Lect:Hall V | 8:00 - 12:00                               |
|                                    | <b>SOL</b>                            |              |               |              | <b>FLU</b>  |  |
| Plenary session<br>12:00 - 13:00   | Restaurant                            |              |               |              |             |  |
|                                    | Closing ceremony & Lunch - Restaurant |              |               |              |             |  |