

42nd International Vienna Motor Symposium

28 - 30 April 2021, Hofburg Conference Centre, Vienna

DESIGN of LECTURES, TEXTS and VIDEOS



The contents of this information brochure as well as a format template for the text layout can also be found on our website

<https://wiener-motorensymposium.at/en/>

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Imprint:

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1. Preface

The Austrian Society of Automotive Engineers (OEVK), as the organizer of the International Vienna Motor Symposium, thanks you very much for presenting a lecture at our event.

In the following we like to inform you about important formal conditions for the design of lectures, texts, and videos. Please take this information into account when preparing your presentation.

The OEVK office is happy to answer any questions you may have.

Please contact

Ms Ulrike Riegler, email: ulrike.riegler@oevk.at, phone: 0043-1-5852741-40
for general organizational information

and Mr Reinhard Preiml, email: reinhard.preiml@oevk.at, phone: 0043-1-5852741-70 in
technical matters.

Thank you very much for your kind cooperation.

Univ.-Prof. Dr. Bernhard Geringer
President of the Austrian Society of Automotive Engineers (OEVK)

2. Lecture Duration / Lecture Language

Lecture duration: The lecture should not exceed 20 minutes. Ten minutes is reserved for discussion.

Lecture language: English

3. Lecture Text for Publication in the Proceedings of the International Vienna Motor Symposium

3.1 General Information

As your lecture will be published in the proceedings of the International Vienna Motor Symposium, it is necessary to provide us with a complete text version (including the figures) of your lecture. The submission of the presentation slides alone is not sufficient in this respect.

The lecture text in electronic form (PDF format) is required for printing this anthology, for the USB stick, the participant area on the website and the Motor Symposium app.

The maximum number of pages is 20. The printing is done in colour.

Please ensure that your original does not have to be edited in any way. Only this original will be used for printing.

By accepting a manuscript, the International Vienna Motor Symposium obtains unlimited usage rights for reproduction and distribution in all currently known forms and for all kinds of use cases.

Subsequent publications (even in extracts) elsewhere by the author will be permitted by the organizers on prior request, whereby the source of original publication at the International Vienna Motor Symposium must be correctly cited.

3.2 Use of the Format Template

For uniformity, please use the format template on the website of the Vienna International Motor Symposium <https://wiener-motorensymposium.at/en/>.

NEW: From the Motor Symposium 2021, every lecture will receive a uniform cover sheet in the printed proceedings (anthology) on which the authors (academic title, first name, surname), the company name and the lecture title are given in English and German.

The second page of the template contains an abstract in English and German. Your lecture text begins on the next page.

The predefined header and footer as well as the specified margins must be adhered to and kept free of additional labels, footnotes, etc.

The footer contains information about the respective International Vienna Motor Symposium and the page numbering.

Please note that the volume of the lectures will be printed in A5 format.

Formatting:

Font: Arial

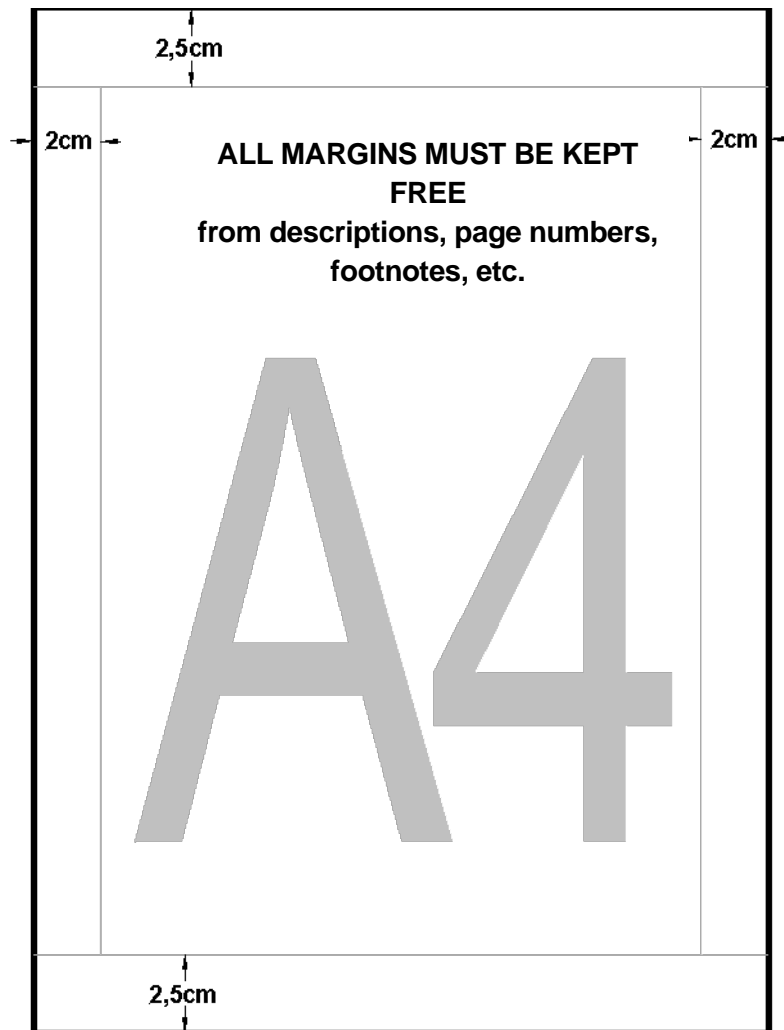
Font size for text: 12

Formatting for main headings: 14, bold, underlined

Formatting for subheadings: 12, bold
single line, justified

3.3 Use of your own Form

Please note the specifications of the format template. Margins, footer and header must be adhered to.



4. Design of the Presentation Slides

4.1 Image Format

The layout of the slides should be in the format 16:9. The slides format 4:3 is also supported. However, in this case, the available projection area in the lecture halls will not be fully used.

4.2 Minimum Type Size

Recommended type size for a DIN A4-sheet:

- text (title of lecture, summary, picture title, etc.):
- Diagram legends:

8 mm or 32 dots
6 mm or 24 dots

4.3 Minimum Line Pitch

Recommended line pitch

- of major lines:
- subsidiary lines:

0.7 mm or 2 dots
0.35 mm or 1 dot

Fonts smaller than 16 dots are illegible.

4.4 Use of Colours

An image is always less recognizable when projected than when viewed on the monitor.

The quality impairment can be easily checked: produce a black-and-white copy of your coloured graph. If all the details can be seen clearly and distinctly on this print-out, then this graph will also be of good quality on the projector screen.

Therefore:

Background: one colour, no shading, no silhouettes, no decorative illustrations.

Clear brightness differences between lines, legend and background.

GOOD:



Background	Line, Legend
Blue	White
Yellow	Black
White	Black

BAD:



Background	Line, Legend
Blue	Red, Green
Grey	Dark Grey
Brown	Black

5. Design of the Video Presentation

A separate leaflet for the design of the video presentation will be available from around 15 January 2021 on the website of the International Vienna Motor Symposium <https://wiener-motorensymposium.at/en/>

6. Further Important Information

We recommend using Microsoft PowerPoint (Version PowerPoint 2016 is supported).

Testing of the computer and the presentation have to be carried out in time before presentation (on the evening before the meeting or during breaks). These tests must be arranged together with an OEVK technician. You will be informed in time to set a date.

For security reasons, it is strongly recommended that lecturers bring a copy of their presentation with them (on a USB-Stick).

Should a company's own design fonts be used which are not compatible to all PCs, these fonts must be embedded in your presentation or made available as a security copy – otherwise the presentation will be incorrect.

7. Format Template

You can find an editable template on the website of the International Vienna Motor Symposium <https://wiener-motorensymposium.at/en/> – the font, font size and margins are already set here.

The following pages are an example of the first few pages (cover and first page).

Please send your text in PDF format by 31 January 2021 to ulrike.riegler@oevk.at.

Dipl.-Ing. M. Frank, Dipl.-Ing. M. Gesk, Dr.-Ing. W. Samenfink, Dipl.-Ing. J. Gerhardt,
Robert Bosch GmbH, Stuttgart;
Dipl.-Ing. B. Hackl, Dipl.-Ing. M. Urbanek, Dr. P. Hofmann, Prof. Dr. B. Geringer,
University of Technology, Vienna:

**New Methods for the Selection of Injectors and the Start-Tuning of
Gasoline Engines with Port Injection**

**Neue Wege bei der Injektorauswahl und der Startabstimmung von
Ottomotoren mit Saugrohreinspritzung**

Abstract

To achieve the emission limits in the future, the potential of the mixture formation during the cold start has to be raised. But such improvements must not decrease the cost/profit balance of gasoline engines with port fuel injection.

Analyses with different mixture formation systems have been made. Some conventional standard injectors as well as injectors with reduced Sauter Mean Diameter (SMD) have been analysed concerning their potential to reduce the HC emissions during the cold start. Additionally some injectors whose injection orifice plate was fabricated using a new technology were tested. With a high and low pressure indication, a 1-D gas change analysis as well as measurements with a fast flame ionization detector, the crank angle based HC-mass flow was deduced. To evaluate the different injectors next to the HC-emissions the characteristics of the combustion, the speed rise and the wall-applied fuel mass were analysed.

The reduction of the SMD leads to an improvement of the mixture formation and the homogenization, so that with emaciation the energy conversion with an optimal efficiency of the combustion during the first cycles was much faster. Next to the lower HC emissions the peak pressure was higher, the speed rise was faster and efficient catalyst heat methods like late ignition angles could be realized earlier.

Kurzfassung

Zur Erfüllung zukünftiger Emissionsgrenzwerte gilt es auch das Potenzial einer verbesserten Gemischaufbereitung in der Kaltstartphase zu heben. Verbesserungen diesbezüglich dürfen aber die attraktive Kosten/Nutzen Bilanz von saugrohr-einspritzenden Ottomotoren nicht gefährden.

In einer Studie zur Startphase werden Untersuchungen mit verschiedenen Gemischaufbereitungssystemen durchgeführt, darunter konventionelle Standardinjektoren sowie Injektoren mit reduzierter mittlerer Tropfengröße (Sauterdurchmesser SMD), und bezüglich ihres Potenzials zur Senkung der HC-Emissionen beim Kaltstart analysiert.

Auch die Möglichkeiten eines neuen Ansatzes zur Verbesserung der Zerstäubungsstrategie werden bewertet.

Mittels Hoch- und Niederdruckindizierung, 1-D Ladungswechselrechnung sowie Messungen mit einem schnellen Flammenionisationsdetektor wird der kurbelwinkel-aufgelöste HC-Massenstrom ermittelt. Zur Beurteilung wird neben den HC-Emissionen auch die Verbrennungsanalyse sowie das Hochlauf- und Wandfilmverhalten betrachtet.

Durch die Reduzierung des Tropfendurchmessers verbessert sich die Gemischbildung und Homogenisierung beim Start, so dass trotz Abmagerung eine deutlich schnellere Energieumsetzung mit wirkungsgradoptimaler Schwerpunktslage der Verbrennung bei den ersten Zyklen stattfindet.

Neben geringeren HC-Emissionen ergeben sich dadurch wesentlich höhere Spitzendrücke, die einen verkürzten Motorhochlauf bewirken und bereits früher effektive Katalysatorheizmaßnahmen wie die Zündungsspätstellung ermöglichen.