

## New Features for BESA MRI 2.0 January 2017

### General

- Inside the European Union and in countries that recognize the CE certification for medical devices, results obtained with BESA MRI 2.0 January 2017 can be used for limited diagnostic purposes when BESA MRI is combined with the application BESA Research for the analysis of epileptiform activity. Diagnostic use is restricted to applications detailed in the Intended Use documents of BESA MRI and BESA Research, and to a group of users detailed in the Intended User documents of the respective applications. These documents need to be consulted together with the other safety instructions before any such use.
- The About box was changed to clarify the usage restrictions of BESA MRI.

### Co-registration

- With the upcoming April patch release of BESA Research 6.1, BESA MRI will be capable to auto-select the correct subject for the co-registration workflow, provided that name, first name, and date of birth were entered at the stage of both MRI and EEG/MEG recording. This will further facilitate a smooth user workflow with a minimization of scope for errors.

### Known issues

The following known issues were not fixed for this release, and remain in the software:

- If holes appear in the scalp segmentation, this may lead to a crash in the BESA Research software after co-registration with this data set (#98). Workaround: Change the cutting plane for segmentation such that it covers the recorded MRI data.
- When special characters appear in the patient name imported from DICOM, the project can not be saved (#213). Workaround: Edit the patient name after import of DICOM and replace special characters with alphanumeric characters.
- When special characters appear in the file name of the \*.sfh file written by BESA Research, the file cannot be opened by BESA MRI (#229). Workaround: Change the file name to replace special characters with alphanumeric characters.
- When switching many times between segmentation and co-registration workflow, an error may occur (#224). Workaround: Re-start BESA MRI from time to time.

## New Features and Bugfixes for BESA MRI 2.0 March 2016

### Segmentation

- The cortex segmentation was enhanced in order to include cortex inflation as an optional additional feature. If an MRI with cortex inflation is co-registered with a sensor cloud, the inflated cortex is automatically available in the BESA Research Source Analysis window for the visualization of cortical methods like Cortical CLARA, Cortical Loreta, or Minimum Norm estimate (BESA Research version 6.1 and higher).
- Problems with loading T2-weighted data sets in Analyze/NIFTI format in a combined T1- and T2-project were solved.
- The subject naming and anonymization workflow was improved for data sets with T1 and T2-weighted MRI scans.

### Co-registration

- An issue when turning “Optimize Scales during fit” off in the Advanced Settings after it had been used in a previous fit was solved.
- For MEG data, turning off “Optimize Scales during fit” in the Advanced Settings could result in erroneous lead field tables. This is now fixed.

## **New Features and Bugfixes for BESA MRI 2.0 August 2014**

### **FEM**

- The FEM model can now be generated for MEG sensors of all commercially available systems.

### **Co-registration**

- The handling of head surface point files was improved. Export of \*.sfh files, and copying of BESA MRI projects to different folders is now possible without loss of any previous results.

### **Reader**

- The DICOM reader was improved and can now handle the situation where DICOM files for one scan are spread over several sub-folders.
- The import functionality for Analyze data formats was improved and now also handles files with 12 bits per pixel correctly.

## **New Features and Bugfixes for BESA MRI 2.0 November 2013**

### **FEM**

- Source space calculation is now optimized so that sources are restricted to positions where the leadfield can be most accurately computed.
- It is now possible to manually adjust conductivity values for scalp, skull, brain and CSF.
- A new smoothing parameter was introduced for scalp segmentation to improve handling of MRI scanner artifacts.

### **Reader**

- The DICOM reader was improved so that individual scans can be selected based on the scan's metadata (subject name, series description, etc.) instead of using the filename of a slice belonging to the scan.

### **Other**

- The use of internal memory was improved for segmentation and leadfield calculation.