SemiMag Package

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CHAPTER 1

Introduction

This documentation describes constructions for semifields in Magma. This package is built on top of the eMAGma Package developed by the author and James B. Wilson [**MW**]. Magma's structure constants model for finite dimensional algebras is enoted `AlgGen`, which is the default category for our semifields. Nevertheless, we return other categories as well: for example as tensors `TenSpcElt`, which facilitates the computation using multilinear algebra. We aim to stay with the current research and have all of the updated classifications included, and we also aim to have infinite families of semifields as well.

1.1. Citing SemiMag

To cite the SemiMag package, please use the following data.

Joshua Maglione, *SemiMag*, version 0.2, GitHub, 2018. https://github.com/joshmaglione/SemiMag.

For AMSRefs:

```
\bib{eMAGma}{misc}{
   author={Maglione, Joshua},
   title={SemiMag},
   publisher={GitHub},
   year={2018},
   edition={version 0.2},
   note={\texttt{https://github.com/joshmaglione/SemiMag}},
}
```

1.2. Version

We include an intrinsic to determine the version number attached in your current Magma run.

`SemiMagVersion() : -> MonStgElt`

Returns the version number for the SemiMag package attached in Magma.

Example 1.1. `Version`

We verify that we have attached the current version of the SemiMag package. Even though `SemiMagVersion` has no arguments, `()` is still required.

```
> SemiMagVersion();
0.2
```

CHAPTER 2

Infinite Families

CHAPTER 3

Tables

Bibliography

[A] A. A. Albert, *Non-associative algebras. I. Fundamental concepts and isotopy*, Ann. of Math. (2) **43** (1942), 685–707. MR0007747

[BCP] Wieb Bosma, John Cannon, and Catherine Playoust, *The Magma algebra system. I. The user language*, J. Symbolic Comput. **24** (1997), no. 3-4, 235–265. Computational algebra and number theory (London, 1993). MR1484478

[MW] Joshua Maglione and James B. Wilson, *Experimental Multilinear Algebra Group*, version 1.2.3, GitHub, 2017. Contributions from Peter A. Brooksbank, https://github.com/algeboy/eMAGma.