

Richard Heidler, Katharina Magerkurth and Annette Lessenich

Recognition as an Incentive – The Career Success of Heinz Maier-Leibnitz Prizewinners

In 2017 the Heinz Maier-Leibnitz Prize is celebrating the 40th anniversary of its founding. The prize honours the outstanding achievements of young researchers. As a supplement to the exemplary success stories documented by the DFG on video in its media library¹, this infobrief examines statistical findings on the career success of all 147 prizewinners from the years 1997 to 2017. The results show that Heinz Maier-Leibnitz prizewinners can lay claim to extraordinarily successful research careers.

1 The Heinz Maier-Leibnitz Prize

The German Research Foundation (DFG) has set itself the objective of providing support to early career researchers, and has anchored this objective in its statutes. One stepping stone towards achieving this goal is the Heinz Maier-Leibnitz Prize, which has been awarded since 1977 and is endowed with prize money of €20,000. Each year a selection committee, appointed jointly by the Federal Ministry of Education and Research (BMBF) and the DFG, selects ten early career researchers from all those proposed,² applying the criterion of outstanding scientific achievements. The Federal Ministry of Education and Research provides the funds for the prize.

In 2017 the Heinz Maier-Leibnitz Prize is celebrating the 40th anniversary of its founding. From an early stage, its emphasis on outstanding research achievements has drawn attention to award recipients' personal research career paths. As well as recognising the achievement represented by the dissertation, the prize also honours, in particular, the Heinz Maier-Leibnitz prizewinners' (hereinafter referred to as the HML prizewinners) independent academic profile and is intended to provide an incentive to further pursue the research career path they have embarked on.

On the occasion of the anniversary of the Heinz Maier-Leibnitz Prize, this infobrief examines how the research careers of HML prizewinners developed before and after the awarding of the prize.

¹ Individual prizewinners were interviewed for the film "40 Jahre Heinz Maier-Leibnitz-Preis – Chronik", a German-language film chronicling 40 years of the Heinz Maier-Leibnitz Prize <http://mediathek.dfg.de/video/40-jahre-heinz-maier-leibnitz-preis-chronik/>

² The following persons and bodies are entitled to put forward candidates: the elected members of the review boards of the German Research Foundation, all academic higher education institutions in the Federal Republic of Germany, the Union of the German Academies of Sciences and Humanities, the Max Planck Society, the Helmholtz Association of German Research Centers, the Fraunhofer Society and the Leibniz Association.

2 Data basis and method

This infobrief concentrates on the steps in the HML prizewinners' careers before the awarding of the prize and their subsequent ca-

reer paths. The supporting data for this is provided by the curricula vitae of 147 researchers who were awarded the prize in the years from 1997 to 2017. 1997 was chosen as the first year for investigation because the prize conditions were revised at that time: firstly, the number of prizes awarded annually was increased that year, and secondly the rule that the prize should be awarded each year to representatives of predetermined research areas was abolished.

The data on the stages in the prizewinners' professional lives were collected via internal DFG sources and also publicly accessible sources and prepared for analysis. The "CV method" chosen (cf. Canibano & Bozeman 2009) adopts the approach of the DFG study "Forschungsförderung und Karrierewege - Vergleichende Studie zu den DFG-Programmen zur Förderung der wissenschaftlichen Karriere" (Research Funding and Career Paths – Comparative Study on DFG Programmes for Research Career Support – only in German) (Heidler et al. 2017a) published in September 2017, and is described in detail there.³

The following analyses generally relate to the entirety of the 147 HML prizewinners of the years 1997 to 2017. In addition, for purposes of chronological comparison, each three years of Heinz Maier-Leibnitz prizewinners were grouped into a total of seven cohorts, ranging in size between 18 and 30 people. For all cohorts, the period under consideration uniformly ends in the summer of 2017, in which the data collection for this study took place. The classification into cohorts makes more differentiated analysis possible, given that the career success to be expected also depends on the length of the research career, i.e., the period between the awarding of the prize and the time of the data collection.

The career stage typology used to classify career success was one formulated by the Euro-

pean Commission for the European Research Area (European Commission 2011). The aim of the typology is to allow the comparison of research careers across countries and sectors. Its use in this infobrief provides the opportunity to place the findings in the context of international discourse on research careers, and to compare them with other studies that use this typology (e.g., Reimann & Wysocki 2015, Huber, Wegner & Neufeld 2015, Heidler et al. 2017a).

The model distinguishes between four research-related career stages:

- First Stage Researchers (R1) are yet to earn their doctorate – this stage is not taken into account because a doctorate is a precondition of nomination.
- Recognised Researchers (R2) have generally earned a PhD at minimum, but have not yet established a significant level of independence, according to the typology. They know their field of research well, have a presence at national and international conferences, can develop and implement a research design, cooperate and communicate successfully with other researchers and have their career prospects in their sights.
- Established Researchers (R3), by contrast, have already achieved a significant degree of independence. They are distinguished from R2 researchers through their visible reputation in the field, the advancement of their own research agenda and the assumption of leadership functions in research projects.
- Leading Researchers (R4), finally, typically hold a permanent position, are highly recognised in their field and have leadership responsibilities.

The job titles sourced from the curriculum vitae data were reviewed for the accuracy of their fit with one of the three levels of this typology that are of interest here, and classified accordingly. For further details on method, cf. Heidler et al., 2017a, p. 30–34.

³ A shortened version of the original study focusing on the Emmy Noether Programme and the Heisenberg Fellowship is available also in English (Heidler 2016).

3 Profile of prizewinners

For the Heinz Maier-Leibnitz Prize in the period from 1997 to 2017, precisely 51 female researchers and 96 male researchers were chosen, equating to a 35 percent proportion of women. Over time there has been a notable increase in the proportion of women. While in the cohorts from 1997 to 1999 as yet only one in five prizes was awarded to a woman, in the most recent cohort almost one in two prize-winners was female (cf. Table 1). This means that the proportion of women is currently above that of the proportion of women completing habilitations (28 per cent) and holding junior professorships (42 per cent) in 2015 (Heidler et al. 2017b, p. 44). The proportion of women is also higher than average compared with the Emmy Noether Programme (31 per cent in 2016) (cf. Reinhardt 2017, p. 18).

The largely stable low average age of 28 when the doctorate is awarded is striking for all cohorts, as is the narrow age range from a minimum of 22 to a maximum of 34 years old. The German nationwide comparison figure has consistently been at around 33 since 2000 (cf. BUWIN 2017, p. 95). The average age of junior professors when a doctorate is awarded

is 31, while for Emmy Noether funding recipients an average age of 30 at the award of the doctorate was determined (cf. Burkhardt and Nickel 2015, p. 126).

At the time the prize is awarded, the persons recognised are 33 years old on average, i.e., around the same age as applicants for the Emmy Noether Programme (cf. Heidler et al. 2017a, p. 27). The average age at the time the prize is awarded has been increasing steadily from the 2003-2005 cohort up to the last cohort studied, by a total of 3.6 years. The time elapsed between completion of the doctorate and the awarding of the prize has been between 5 and 6 years in the last 4 cohorts. In the first three cohorts it was only 3 to 4 years. This is possibly a symptom of the fact that for the last few years the selection committee has been applying stricter standards to candidates in relation to the criterion of “development of an independent research profile after the doctorate”.

Since 1997 the prize has no longer been tied to specific research areas announced beforehand; in the period under investigation it is distributed relatively evenly across the four scientific disciplines. Figure 1 shows the distribution of the prizes across the four scientific

	Persons	Of whom women	Age at award of doctorate			Age at award of prize			Age 2017
	Number	%	Average	min	max	Average	min	max	Average
2015 – 2017 cohort	30	46.7%	28.7	24	34	35.0	29	40	36.2
2012 – 2014 cohort	25	40.0%	29.1	27	34	34.2	30	38	38.0
2009 – 2011 cohort	18	44.4%	28.1	22	32	33.5	28	42	40.8
2006 – 2008 cohort	18	27.8%	27.9	24	30	32.9	28	38	43.2
2003 – 2005 cohort	18	27.8%	28.4	25	33	31.4	27	34	45.1
2000 – 2002 cohort	18	27.8%	27.6	24	30	31.5	26	33	48.1
1997 – 1999 cohort	20	20.0%	27.7	26	31	31.7	28	34	51.2
Total	147	34.7%	28.3	22	34	33.1	26	42	42.5

Table1: HML prizewinners in the years 1997 to 2017: description of the supporting data

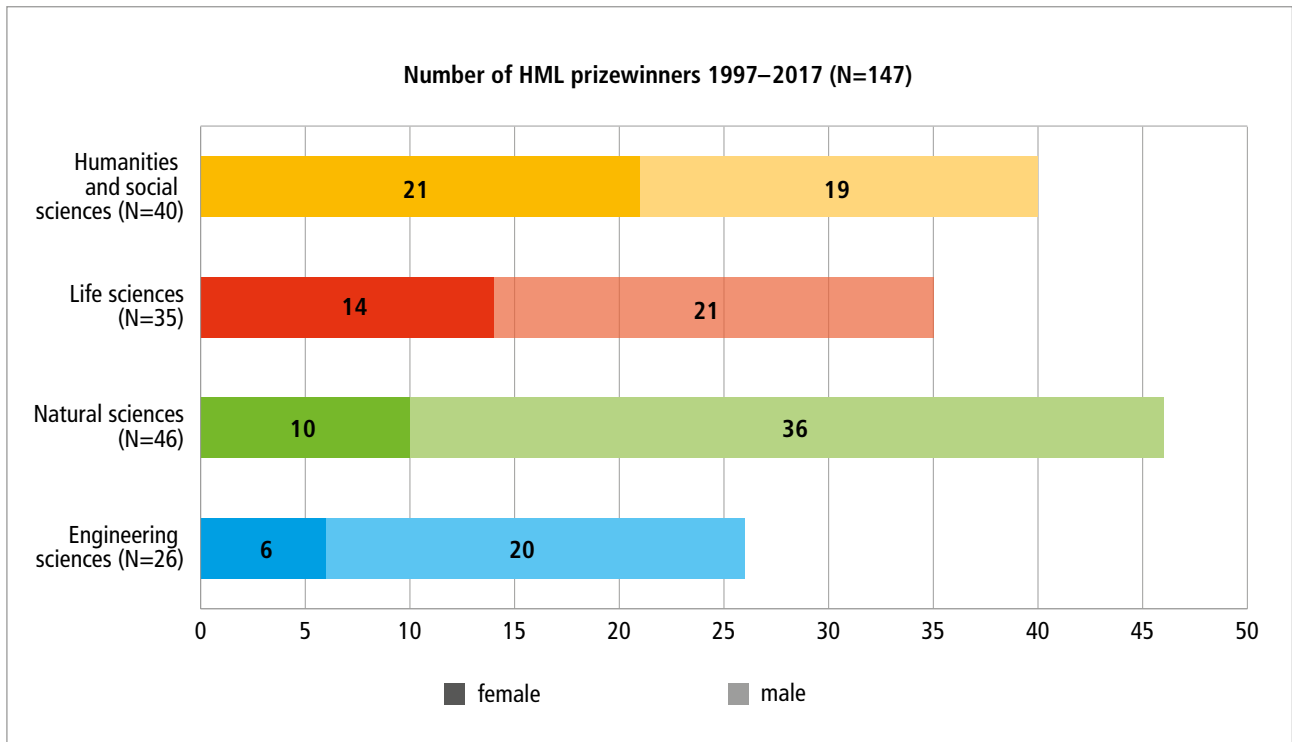


Figure 1: Number of HML prizewinners (1997 to 2017) per scientific discipline by gender

disciplines and also the proportion of women within them.

Between 1997 and 2017 the largest number of prizes, namely 46, was awarded in the natural sciences. Precisely 40 prizes went to researchers from the humanities and social sciences, and 35 life scientists were honoured. In contrast fewer prizes, namely a total of 26, were awarded to researchers from the engineering sciences.

In the humanities and social sciences, slightly more female prizewinners were recognised than male (21 women and 19 men). The proportion of women in other scientific disciplines who have been awarded the prize is lower. However, it is still above the normal proportion of females in those scientific disciplines (cf. Reinhardt 2017, p. 22).

The Heinz Maier-Leibnitz Prize is aimed at early career researchers. As a matter of principle, persons should not be considered if they have already achieved permanent tenure as a professor. Potential recipients are researchers in prominent mid-level positions, such as those who have already completed their habilitation or are in the process of doing so, jun-

ior professors, funding recipients in the Emmy Noether Programme, heads of early career research groups and comparable early career research positions.

Various information was collected in order to evaluate the qualification paths and prominent non-professorial teaching positions of the prizewinners before and after the award. The years in which a junior professorship was commenced and a habilitation completed were recorded based on the analysis of curricula vitae. In addition, the DFG database records whether a proposal under the Emmy Noether Programme or the Heisenberg Programme was successful before or after the prize was awarded. Other positions as head of an early career research group were not recorded.

The analysis reveals that many HML prizewinners possess one of the named prior qualifications or hold the corresponding positions. Overall, one in four prizewinners has already completed a habilitation at the time the prize is awarded; 23 per cent of HML prizewinners have received Emmy Noether funding, and 12 per cent held a junior professorship. The Heisenberg Programme is aimed at a later career phase, and

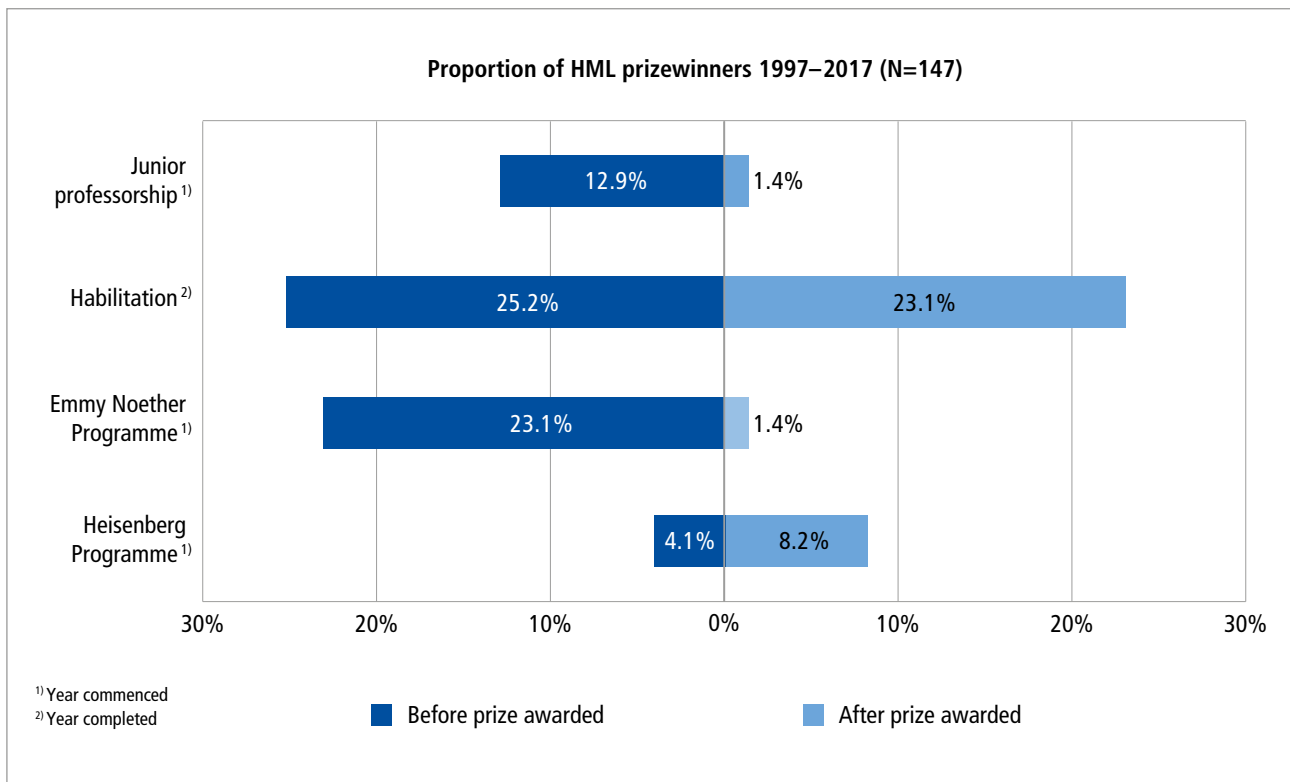


Figure 2: Selected early career positions of HML prizewinners (1997 to 2017) before and after the awarding of the prize (as a percentage)

an application is not typically made until eight to nine years after the doctorate (Heidler et al. 2017a, p. 38). Consequently, the proportion of those who are Heisenberg funding recipients before the prize is awarded is quite low, at four per cent. Eight per cent of HML prizewinners apply successfully under the Heisenberg Programme after the prize is awarded; 23 per cent go on to complete their habilitation.

4 Research career paths

The collection method chosen here also permits statements to be made from the perspective of the 2017 reporting year about longer-term positioning within the research system. The vast majority of the prizewinners pursue a research career. Of all 147 prizewinners, in 2017 almost three-quarters have been appointed to a full professorship or hold an equivalent position – classified as “R4” according to the typology described above (cf. Figure 3). Specifically, 60 of 89 of the HML prizewinners work-

ing in an R4 position in Germany today hold a W3 professorship. Since approximately the same number of W2 first appointments occur nationwide as W3 (cf. BUWIN 2017, p. 192), the comparatively high proportion of W3 professorships among HML prizewinners underscores the success of this group.

It is likely that this figure will rise further over time; if one differentiates the career success of the prizewinners according to three-year cohorts, it is evident that between 89 and 94 per cent of all HML prizewinners in the older five of seven cohorts have already obtained a position equivalent to the R4 level today (cf. Figure 3). The relatively stable distribution gives an indication that the two most recent cohorts can be expected to take a similar path.

An evaluation of the time elapsing between the awarding of the prize and appointment to a professorship or similar R4 position provides further information on the dynamics of career success. Those who have advanced to R4 level were often appointed to the position in the same year the prize was awarded (17 per

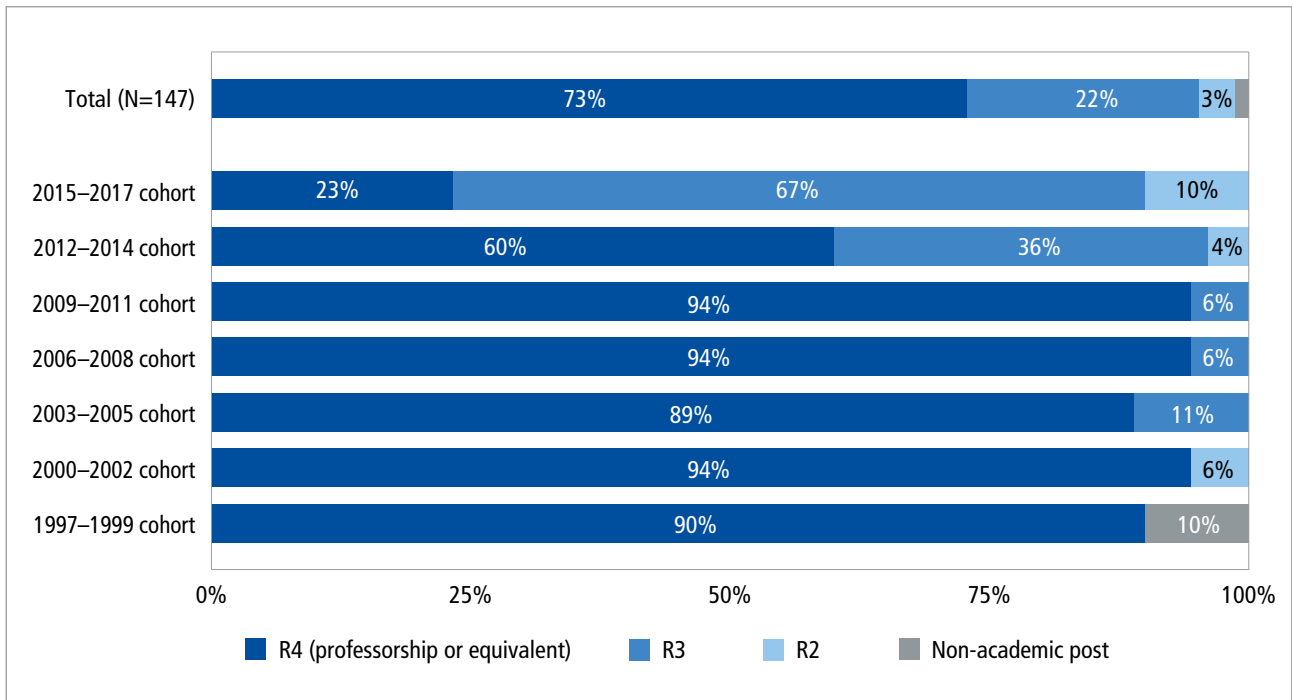


Figure 3: The career level achieved in 2017 by HML prizewinners from 1997 to 2017 by cohort

cent) or the year after that (24 per cent). Most of the appointments have occurred within a maximum of 4 years of the award (cf. Figure 4). Advancement to R4 or appointment to a professorship occurs on average at 36 years of age for this group, i.e., several years before the

average appointment age (41 for W2 professorships and 42 years for W3 professorships; cf. BUWIN 2017, p. 117).

Today the majority of Heinz Maier-Leibnitz prizewinners are working in Germany. Two-thirds of the HML prizewinners are working

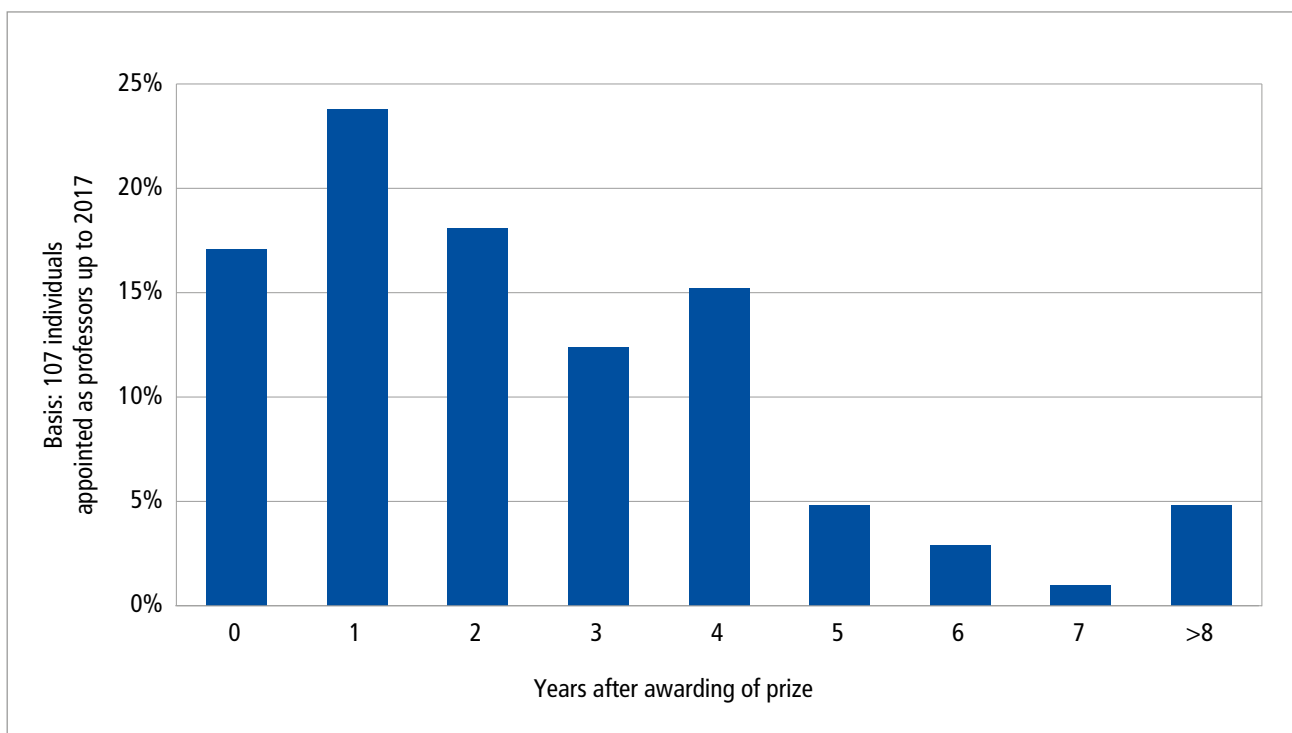


Figure 4: Time elapsed between awarding of prize and advancement to a position classified as R4 in years (as a percentage, 2 figures missing)

at German universities, and a further 18 per cent at non-university German research institutions, most frequently (8 per cent) at the Max Planck Society (see Figure 5). Another 18 per cent of those awarded currently work at an international research institution. A comparison with the Emmy Noether Programme is instructive here. Seven to eight years later, slightly fewer heads of early career research groups funded under that programme in 2007 and 2008 are working abroad (12 per cent), and also slightly fewer (six per cent) at Max Planck Institutes (cf. Heidler et al. 2017a, p. 67).

Further analyses show that HML prizewinners also receive further honours in their subsequent careers. For example, five people later received a Gottfried Wilhelm Leibniz Prize, and two people were appointed to an Alexander von Humboldt professorship. And, finally, acceptance into the German National Acade-

my of Sciences Leopoldina is documented for ten people who were awarded the prize.

Recognition through the Heinz Maier-Leibnitz Prize is also of major significance to the prizewinners themselves. 85 per cent refer to this honour in their publicly accessible curricula vitae.

5 Conclusion

The Heinz Maier-Leibnitz Prize has now been honouring early career researchers for 40 years. The intention is not merely to recognise those selected for their achievements to date, but to inspire them through the award to remain working successfully in research into the future. To answer the question of whether this goal is being achieved, the curricula vitae of all 147 prizewinners between 1997 and 2017 were analysed.

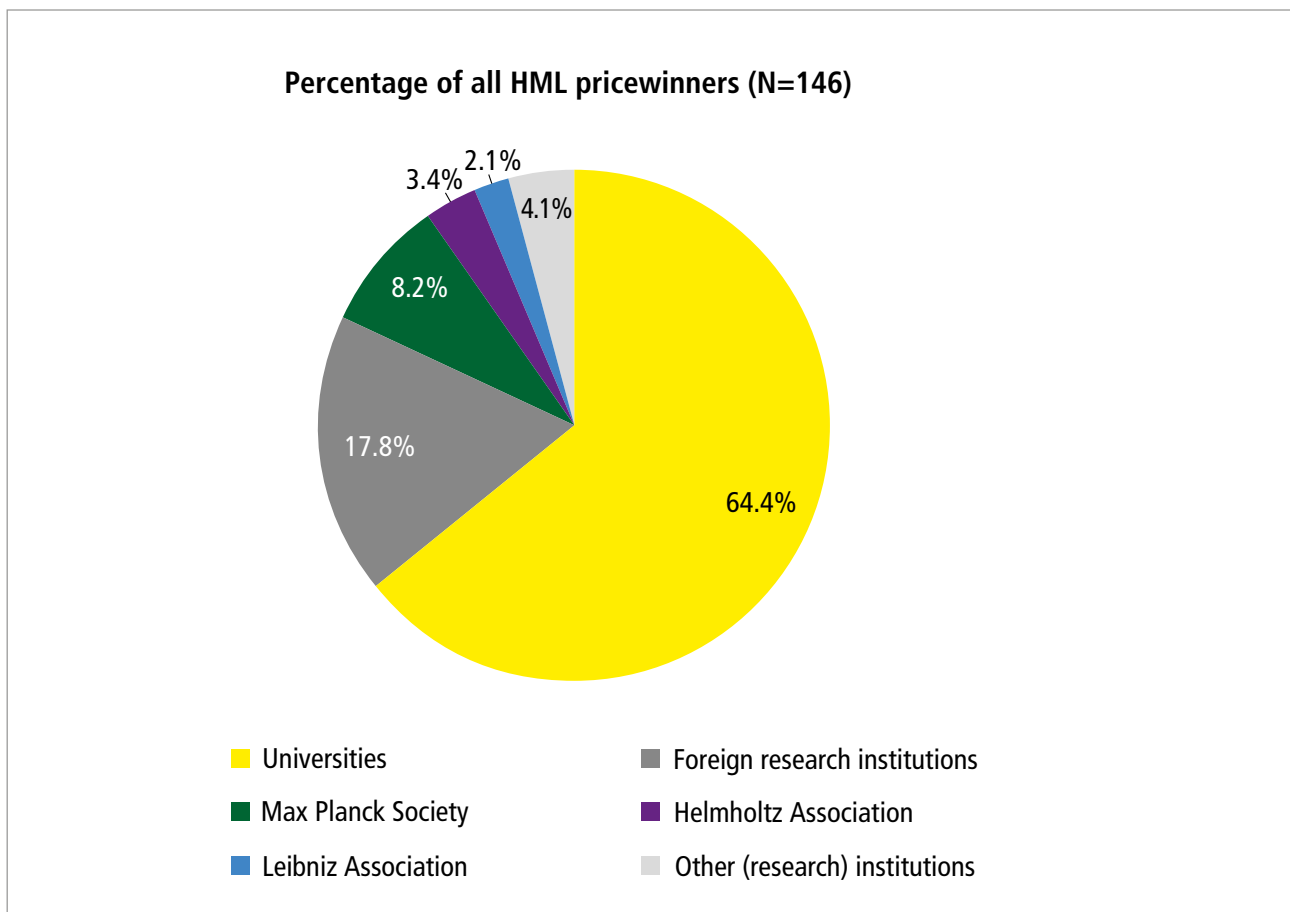


Figure 5: Type of institution at which HML prizewinners from 1997 to 2017 are working in 2017 (as a percentage)

The result shows that almost all prizewinners remain in the research system. In 2017, 73 per cent of the prize recipients hold a professorship or an equivalent position. Completion of a doctorate at the younger-than-average age of 28 is generally also followed by an earlier-than-average appointment to a professorship around three years after the awarding of the prize, i.e., at the age of 36 years. A large proportion of the prizewinners are appointed to W3 professorships with more resources. Thus the prize indeed appears to motivate its recipients to successfully continue to pursue their careers in research. Furthermore, there is much to suggest that the awarding of a prize is also taken as a sign of high scientific quality by research institutions appointing professors.

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Contact:

Dr. Jürgen Güdler, Deutsche Forschungsgemeinschaft (German Research Foundation)
Kennedyallee 40, 53175 Bonn
juergen.guedler@dfg.de
Phone: +49 228 885-2649

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